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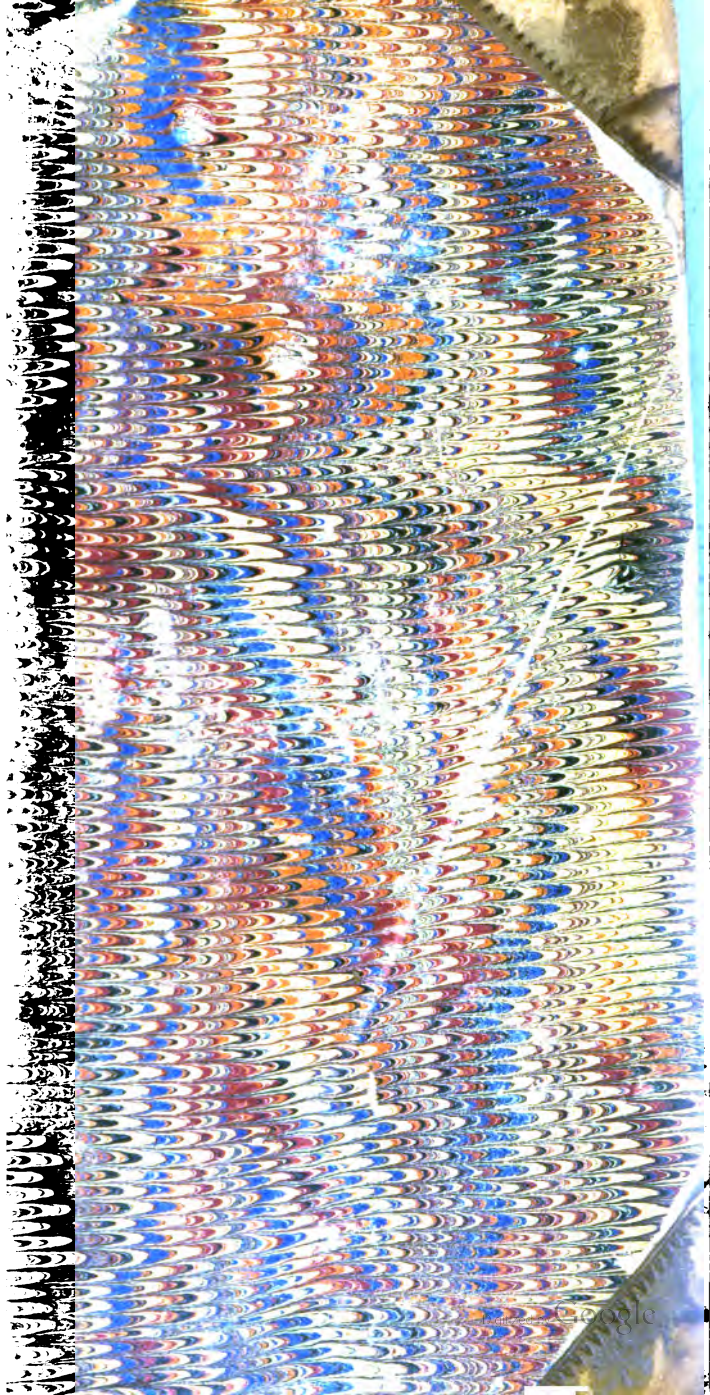
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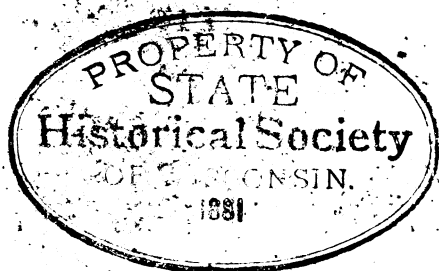
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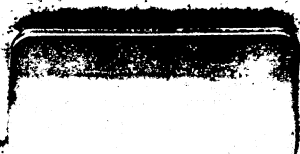
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LIVES

OF THE

BROTHERS HUMBOLDT,

ALEXANDER AND WILLIAM.

TRANSLATED AND ARRANGED FROM THE GERMAN

OF

KLENCKE & SCHLESIER,

BY JULIETTE BAUER.

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With Portraits.

LONDON:

INGRAM, COOKE, & CO., 227, STRAND.

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ALEXANDER VON HUMBOLDT.

ALEXANDER VON HUMBOLDT:

A Biographical Monument.

Philipp Friedrich Hermann

BY PROFESSOR KLENCKE. 1813-21

Translated from the German,

BY JULIETTE BAUER.

LONDON:
INGRAM, COOKE, & CO., 227, STRAND.

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L I F E

OF

ALEXANDER VON HUMBOLDT.

LIFE

OF

ALEXANDER VON HUMBOLDT.

CHAPTER I.

ANCESTRY—BIRTH—YOUTH—FIRST EDUCATION—UNIVERSITY.

THE ancient noble family of Von Humboldt had its origin in Pomerania, where it formerly possessed estates, situated in the principality of Camin, and in the district of New Stettin. But at the time when Prussia obtained possession of these parts, descendants of this old family served the margraves of Brandenburg on diplomatic and military expeditions; and the family removed from Pomerania to near Magdeburg, where it became possessed of additional estates.

During the life of Frederic William the First, a captain Hans Paul von Humboldt served in his army, and married the daughter of the Prussian major and general adjutant, Von Schweder. He had three sons by her, one of whom, Alexander George, is of particular interest, as he was the father of the celebrated Alexander.

The baron Alexander George von Humboldt, born in 1720, served for a long time in a dragoon regiment, was then made major, and, during the seven years' war, adjutant to duke Frederic of Brunswick, who frequently sent him with verbal embassies to Frederic the Great. Major von Humboldt was inheritor of Hadersleben and Ringesleben, and subsequently took

the castle of Tegel, between Berlin and Spandau, three leagues north-west of Berlin, in fee farm of the royal Woods and Forests. Tegel had originally been a hunting seat of the great Elector, and a royal hunting establishment was kept there under Frederic the Great. This castle has latterly become important to the family, and the major made it a place of retirement for his age after his restless life, but was unfortunately called away by an untimely death. When the seven years' war was over, Frederic the Great made Major von Humboldt one of his chamberlains, in 1765, and at the same time he was attendant chamberlain on Elizabeth, the newly-married princess of Prussia, and had on that account to live in Potsdam. But when this unhappy marriage of the prince of Prussia was dissolved, and the princess had been taken to Stettin, the Major von Humboldt, his service being over, exchanged Potsdam for Berlin, and lived partly in the capital, and partly in his neighbouring castle of Tegel. He had, however, by no means lost the favour of the prince, (subsequently Frederic William II.,) for he visited him once annually in Tegel; and it may with certainty be surmised, that had the major survived the prince's accession to the throne, he would have advanced him to an important position in the state, or perhaps even have entrusted the formation of a ministry to him.

Major von Humboldt was married to the widow of a Baron von Holwede, whose maiden name was Von Colomb, cousin of the princess Blücher, and niece of the venerable president Von Colomb in Aurich. She had a son by her first marriage, who served as officer in the regiment of Gens d'armes. The family of Colomb comes from Burgundy, where it was celebrated for having erected immense glass works; it was obliged to emigrate, in consequence of the repeal of the edict of Nantes, and settled in Germany.

Two sons were born from the marriage of the Major von Humboldt with the widowed Baroness von Holwede. The eldest, William, was born in Potsdam, on

the 22nd of June, 1767, when the father was still chamberlain to the princess Elizabeth of Prussia; the younger son, Frederic Henry Alexander, the subject of our memoir, first saw the light of the world two years later, in Berlin, on the 14th September, 1769.

The castle of Tegel made the first impressions of home on the two boys; for here they spent the greater part of their youth together. To this castle is attached a mysterious legend, which Goethe alluded to in "*Faust*," to show his dislike for the enlightener Nicolai. The present Tegel is not the old one, but rather a new creation of its possessor, William, brother of Alexander, who commenced and ended his life here; and who built a house here, which, to preserve one old turret, rises in turrets from the four corners; and which, as it was once his *tusculum*, is now his grave. The old castle in which the two boys passed their youth was grey and antiquated. The contemporary of Humboldt, a Prussian commissioner of woods and forests, named von Burgsdorf, whose official residence it was, had beautified it by the laying out of nurseries and plantations, which were universally admired at the time, and the new owner had taken possession of the castle and outworks during this time. Tegel is separated from Berlin by a dark pine grove, and is situated in a beautiful neighbourhood north-east of an arm of the Havel, called the Tegel lake. On the southern shore are seen projecting the town and fortress of Spandau, and the declivities which bound the north-western shore of the lake are richly covered with trees and verdure, while promenades and gardens afford the most varied and charming views.

This castle had always been, while the old major lived in it, known for its extended hospitality; and the ripening boys not alone saw their father enjoy the honours of princely visits, but many an officer, statesman, or scholar, was hospitably invited and received. Thus, in May, 1778, Goethe, who had accompanied his duke to Berlin to a grand review, also visited Tegel; he walked one morning from Berlin over Schön-

hausen to Tegel, dined there, and returned to Potsdam over Charlottenburg. At that time he perceived there two merry boys of ten and eight years of age, but did not foresee in what an intimate relation in mind and heart he should one day stand to them, especially to the elder.

The education and first training of these boys took place at a time when the science of education was, with the sciences of antiquity and languages, one of the great questions of the day. The new methods of education which Rousseau especially advocated had quickly found adherents in Prussia. The prebendary Von Rochow set a cheering example of a practical reform in education; the well-known Gedike worked for it in Berlin, and Joachim Heinrich Campe, by birth a Brunswickian, at that time field chaplain to the regiment of the prince of Prussia in Potsdam, joined the movement of reform in education. Basedow and the Philanthropin, an institution in Dessau, taught tutors and professors after the new method of Rousseau, and it became a point of honour and of fashion, in the educational zeal of the age, for the higher nobility to take tutors who could unite the practical and the useful with the revival of the ancient languages, especially of the Greek. The plan had been originated by Heyne in Göttingen, and Major von Humboldt also obeyed these influences. He recognised in the then field chaplain of the prince of Prussia's regiment in Potsdam, in Campe, a man much more qualified for educational than for theological duties, and, after he had been preacher to the regiment since 1773, he took him into his house in 1775, and confided to him the preparatory education of his two sons, William and Alexander. It may be imagined that Alexander, being then only six years old, could have less felt the influence of such a man as Campe than William, who was two years older; but his influence over both must be acknowledged, as the ideas of Campe were developed in gigantic proportions in both his pupils. Campe, in later

times, enjoyed the reputation of being the greatest philologist and critic of German style next to Klopstock, and he probably, in Major von Humboldt's house, devoted his attention chiefly to the study of languages, and it is not more than probable that this same Campe should have laid the first foundation in these boys, and aroused the spirit of research which never afterwards quitted them. But we must notice here another influence of the teacher on the life of his pupils, especially on the younger one. Campe had plainly seen that the mode of education and tuition till then adopted in families and institutions, only tended to develop the memory, not the mind, of the student; he opposed, from the first, the mechanical training of youth, and endeavoured to develop the susceptibility of the youthful mind and spirit by a perception of the world, of foreign natures, men and manners. Could not, then, this man, who edited Robinson Crusoe, and enriched the juvenile library with imaginative delineations of bold voyages, could he not, as Humboldt's first teacher, have influenced the imagination and the reason of his pupils, and laid the foundation in Alexander for his love for exploratory voyages in distant regions?

Campe did not remain for a long period in the intimate relation of tutor under the paternal roof of the Humboldts. His influence over his pupils, however, continued during his life, and the friendship between them remained a lasting one, and became more intimate again in later years. It is a well-known fact that Campe accompanied the elder of the brothers on a journey from Göttingen to Paris in the summer of the year 1789; but we could not ascertain with certainty whether Campe had made a journey through Germany and Switzerland with the two boys while he was yet their tutor, as has been asserted by Schiller's circle at Jena.

Campe gave up his appointment as tutor to the two boys in 1776, as his reputation for teaching was such, that, after the retirement of the celebrated

Basedow, he was appointed director of the Philanthropin at Dessau, and received the title of an Anhalt-Dessau commissioner of education. This appointment he fulfilled for one year, and left it to found his subsequently so celebrated private educational establishment at Hamburg.

Major von Humboldt had now to look out for another tutor, and in the beginning of the year 1777 his choice fell upon a youth of twenty years of age, who, without enjoying the reputation of his predecessor, excited great expectations in the major, which he faithfully fulfilled. His name was Christian Kunth; he was poor, and had to discontinue his academical studies from want of the necessary pecuniary means. But he possessed an extraordinary knowledge of German, Latin, and French literature, of philosophy and history, and a high order of intellect, joined to the habit of moving in aristocratic circles, which his position of teacher opened to him. By this means Major von Humboldt made his acquaintance, and took him into his house as tutor to his sons, which was at the time a mark of great confidence, and an envied distinction. The young man found his pupils of the respective ages of eight and ten years, and he succeeded in further developing and perfecting the talents roused in the mind and heart of his young charges by his predecessor Campe. He entered into a more intimate relation to them than that of teacher towards pupils; he bestowed more care upon them than that by which a teacher faithfully imparts his own knowledge to the mind of a talented or quick child. Kunth endeavoured to make everything within his reach in Berlin available and useful for the development of his charges. The success of his endeavours not only confirmed the confidence of the parents, but awoke in the youths a pure, unchangeable love for their teacher, and an affection and confidence which continued throughout his life to his death in an equal degree. Whenever Alexander was, in later times, absent on his voyages of discovery, or if the elder

brother tarried among the ruins of classical antiquity, it was always the faithful former teacher and later friend, Kunth, who administered their property with paternal conscientiousness.

Kunth conduced to satisfy and develope in his pupils the inborn love for universality of knowledge, but endeavoured always to unite it with profundity; and if Campe had awakened a wish for philology and cosmology in them, Kunth made it available by fundamental researches and universality. Both brothers, in obedience to their different natures, followed different branches of their acquirements, but both were rooted in the same foundation. The elder brother made humanity—its intellectual world, and its especial element, language—the task of his life. The younger, Alexander, took the outward part of nature and humanity in all its varieties. While the elder brother educated himself for classic antiquity, art, philosophy, and language, Alexander from the same origin directed his attention to natural sciences. Both frequently met and assisted each other in the points they originally had in common.

Kunth thus acted upon his pupils, but this intimacy could not fail to exercise a strong improving influence on him the teacher. The house of the chamberlain and Major von Humboldt united in itself rank, intelligence, cultivated acquaintance, and influence. Kunth, possessing the confidence of the family in the highest degree, was considered as one of its members, was entrusted with commissions in the execution of the practical affairs of the family and its public interests, and thus gained an experience in practical business which, at a future period, qualified him for an official position, as we shall see.

But a great blow afflicted the family in which Kunth had been tutor since 1777. In the January of 1779 the Major died, and the boys were without a father. The maternal voice now exercised a greater influence, and beside the noble confidence which the widowed lady showed Kunth, by giving him all but

paternal rights over the boys, it was the highmindedness of the lady which beneficially ruled the whole household, and inspired an enthusiastic love for her into the hearts of her children, whose education was her chief care.

Another intellectual influence was now brought to bear on the two youths. Since 1776 a physician had lived in Spandau, who soon after became district physician of the Havel district, and had an extensive practice. This man was Doctor Ernst Ludwig Heim, since become so famous as doctor and professor of the University of Berlin. Probably the major's illness may have been the origin of his acquaintance with the family; we know only that as doctor to the family of Humboldt and of the headranger, Von Burgsdorf, who, as a royal official, had to live in Tegel, he frequently came from Spandau to visit the neighbouring castle and village. He also communicated many of his experiences of foreign trees and the nursing of foreign plants to the ranger, and made himself useful in the laying out of the nurseries and plantations there. His frequent visits to the Humboldt family commenced in 1780, when he entered into a nearer, more intimate friendship with Kunth, the tutor of the household. These visits, which Heim made on horseback, and which generally brought him to the dinner-table of the major's widow, became of importance to us in the following year, when Heim instructed the two boys, William and Alexander, in botany after dinner, and explained to them the twenty-four classes of the Linnean system. An expression Heim used at the time is remarkable, namely, that the elder boy easily comprehended these lessons, and retained the botanical names, while Alexander, then eleven years of age, was of a less intelligent nature, a phenomenon which was confirmed by the anxiety which mother and tutor at one time felt that Alexander was not at all fitted for study.

The brothers made short excursions in the neighbourhood with the physician Heim; and we know

that, in 1783, on the 19th May, when Frederic the Great annually reviewed his troops in Spandau, and the entire population was on foot, Heim with the Tegel friends—Kunth and his two pupils—were present at the review. Heim resided in Berlin in 1783, and must therefore have brought his friends from Tegel, or have met them in Berlin.

About this time the brothers were sent to Berlin with their tutor, in order to continue their education with the better opportunities of the capital. William, the elder, occupied himself principally with languages, and as neither he nor his brother visited any of the schools, teachers were engaged and selected by Kunth to complete the special instruction he had commenced. Alexander generally participated in William's lessons, but was less strictly urged to study, because he was physically weaker than his brother, and learning was more difficult for him. Not till an advanced period of his boyish life did a light suddenly shine in his mind, and then he had to make greater exertions than his brother to keep pace with him in their common studies. Alexander was indeed delicate and nearly always ill, even in his university years, and it was therefore natural that Kunth should be less strict in inciting him to study, especially as he still doubted his abilities when he compared them with the rapid acquirements of William. Alexander, at a subsequent period of life, ascribed his weakness to an excess of unhealthy secretions which accumulated in his frame, but his friends, among others Forster, assure us that Alexander's bodily ailments only arose in consequence of the premature activity of his mind, and that this excessive activity was caused by his desire to equal his brother in knowledge and acquirements.

They received instruction in the Greek language from Löffler, at that time field chaplain to the Berlin Gensd'armes regiment, who had already published a rationalist work on the fathers of the church and on new Platonism. He was succeeded by a certain Fischer of the grey cloister, in Berlin, who was known

chiefly as a mathematician, but who possessed a considerable knowledge of Greek. The philological talent which already showed itself in the elder brother, induced them to learn modern as well as classical languages, while in consequence of the love for natural sciences which Alexander felt, young Wildenow was engaged to instruct him in botany. Kunth endeavoured to prepare his pupils, who had now grown up to young men, for their future academic life in a worthy manner, by private lectures on scientific subjects. He engaged such men as Engel, Klein, Dohn and others, who gave the brothers complete courses of lectures on philosophy, law and political economy; and particularly Dohn, who was in the department of foreign affairs, gained a considerable influence over them. The minister Schulenberg had requested him to give a course of political economical lectures to a young count Arnim, and, in obedience to the wish of their mother, the Humboldts also joined this course, which lasted from the autumn of 1785, to the June of the following year, and which resembled the university classes. These lectures of Dohn, which were carefully composed on a special plan, brought him into a more intimate relation with the Humboldts, and this friendship continued unchanged when they had arrived at a more matured age.

But now the individual peculiarities in the character of the brothers began to show themselves. The impression made on the sentimentality of the nation by the formerly published "Werther" of Goethe received new nourishment from the highflying enthusiasm of Schiller's Don Carlos. The whole educated world revelled in feelings and ideals, and sentimentality belonged to the tone of the educated class, especially to the younger portion of it. The young William particularly was influenced by this tendency, which was increased by his associations, for, by his companions in his dancing lessons he was brought into nearer relation with ladies, who, by their subsequent intellectual standing, show what a sentimentalising impression

they must have made on a susceptible youthful nature. Among them were Fräulein von Briest (married first to Von Rochon then to Von Fouqué), then the well known Rahel, and Henriette Herz as beautiful as she was intellectual, to whom William stood in almost fraternal relation. This sentimentality of the elder brother, which characterised him at the university, and which slightly tinged his future life, a sentimentality which, united to intellect, showed itself especially in the Jewish circles of Berlin as an echo of the age of Mendelssohn, found less susceptibility in the physically delicate Alexander. Although this sentimentality of the feelings even infected his tutor Kunth, his mind developed its natural observing faculties, and he already studied the ways of nature, for whose phenomena he evinced an anxiously inquiring mind. While William was pursuing the æsthetical studies of the age, especially those of Schiller and Goethe, Alexander followed the researches into natural history of Goethe, and endeavoured to make his knowledge applicable to the better understanding of natural phenomena.

Thus the two brothers passed an exciting, happy time of their early education as youths, partly in the capital so rich in the means for education, partly under the domestic influence and protection of their beloved mother, on their family estate of Tegel; and their descent from one of the noblest families, as well as their own reputation, easily opened the richest sources of knowledge for them. Herein the two brothers are favoured children of fortune, for they never suffered from temporal cares, from that fainting of the spirit, thirsting for knowledge, and that striving for opportunities to apply the acquired knowledge which oppresses, and sometimes quite destroys, a poor youth of talent coming from an obscure family. Another feeling which remained strong in the brothers during their whole life, and which probably took its origin at this period, is their Prussian patriotism. Before their childish imagination, the person of

Frederic the Great stood a glorious picture of their native land, and in him the reformation and glory of Prussia were personified. The king died when the brothers were on the point of leaving Berlin to attend a university, and they therefore were not witnesses of the weakness, the political and moral dissolution which came hand in hand with the stupid rage for a reason reformation which the successors of Nicolai spread over Berlin.

The brothers entered on their academical life together as they had made the preliminary studies together. The university of Frankfurt on the Oder, which at that time enjoyed a great and wide-spread reputation, was chosen for their further education, and the commencement of their special studies. In the year of the great king's death, in 1786, they departed with their tutor and friend Kunth, with the intention of remaining there nearly two years, till the Easter of 1788. William devoted himself to the study of law; but Alexander, in obedience to the natural tendencies which were developing themselves with increasing force, chose the study of political economy, as it seemed to him most nearly allied to his scientific inclinations. Their former teacher in Berlin, Löffler, who had since become professor in Frankfurt, took the brothers, with Kunth, into his house; and, while they each followed their special studies, they pursued their philosophical, philological, and natural historical studies in common, for William took special interest in the latter.

The choice of the university of Frankfurt was probably the mother's, who wished to keep her sons near her, and not lose sight of them so quickly; therefore Kant, the celebrated philosopher of the age, who lectured in Königsberg, did not influence the choice of the university with the widow of Major von Humboldt. The mother's real intention was to send her sons to Frankfurt as a preparation for their future public life, but to let them attend Göttingen, the most celebrated university of that time, for their final edu-

cation. Leipzig and Halle had already lost some of their fame, and Jena only reached the zenith of its glory at a later period.

In Frankfurt, Count Dohua, who studied here from 1786-88, became an intimate friend of the brothers Humboldt; but he attached himself more to the elder brother, in consequence of his studies being principally classic; and William, as well as Rhediger, exercised a lasting influence over him here, and met him again at a later period in Göttingen.

For Alexander nothing could have been more agreeable than the removal to Göttingen, which took place in 1788; for at Göttingen lived that great man in the branch of science for which he felt more and more an innate tendency; here lived and taught BLUMENBACH, the celebrated natural historian, who, with his strong mind, arranged and comprehended all the features of natural history according to form and existence; here lived HEYNE, the teacher and reviver of archæologic science; and here lived EICHHORN, the historian.

Archæology and history were the domains of learning on which the two brothers worked in common; the classical antiquity, with its philologic and artistic studies, attracted both; history in its philosophic view, interested William, and served Alexander to collect materials for cosmography and ethnology. While William made himself more intimate with classic literature, and the writings of the philosopher Kant, Alexander gave himself up to the instructive and personal influences of Blumenbach, but both brothers found a common point of union in the congenial intercourse with Professor HEYNE, who soon esteemed the young men highly, and exercised a great influence on their future studies.

Alexander here formed a new and lasting incitement in the acquaintance and quickly-cemented friendship with GEORGE FORSTER, HEYNE'S son-in-law. This man had formerly accompanied Cook in his journey round the world in the capacity of natural

historian, it was therefore natural that he should be an attraction for Alexander, whose phantasy was filled with images of a transatlantic strange world, which Campe, the editor of "Robinson," had awakened in him, and the longing for the personal knowledge of fabulous districts, for bold sea journeys and new discoveries was excited in him, when Forster told of his journey round the world. Thus Forster was the first portentous individuality, surrounded by the mysterious halo of a transatlantic journey, who became more closely allied to ALEXANDER VON HUMBOLDT. He was a man of boldness and fertility of mind, full of a holy striving for liberty, whose inborn love of freedom had been increased by his early journeys to a new world, and could ill-domesticate itself in the narrow German boundaries, and who was at the same time a determined opponent of the enlightening rage then prevalent in Berlin. The brothers Humboldt had, from their childhood, remained far from any contact with the littlenesses of Prussian officials, but cherished a true patriotism from their liberal ideas, developed in the vicinity of an intelligent monarch; the free ideas of Forster, his bold spirit, and his racy unprejudiced manner of thinking, had therefore a lasting influence on the young friends, and founded and developed, especially in Alexander's character, that feature of citizenship which is one of his noblest characteristics. During the summer of 1788, Forster lived with his wife at the house of his father-in-law, Heyne, in Göttingen, and in the autumn of that year he went to fill his new appointment at Mayence, where he was councillor and librarian of the university then existing there. That he made an impression also on the elder brother William would be alone proved by the fact that soon after Forster's removal from Göttingen he stayed with him four days on the occasion of a Rhine journey.

Both brothers sought and valued Forster's acquaintance, and entered into an intimate friendship with

his wife, a being as intellectual and cultivated as she was amiable. The intercourse with Johann Stieglitz, whom they knew, from Berlin, where he had belonged to the Jewish circle of the Mendelssohns, Herz, &c., and where he had pursued his philosophical studies, was less attractive to Alexander than William. It is strange that Stieglitz should have entered into the sentimentality of those circles, as his biographer truly states that he was only a man of reason, that he overcame and concealed all emotions for the purpose of acute calculation and observation, and that he never "forgot" himself. It is probable that his intimate friendship for William had its more natural origin in the fact, that Stieglitz had in Göttingen saved him from drowning in the Leine while bathing there.

After a lapse of two years the time arrived when the brothers were to leave the university. Alexander had in the meantime uninterruptedly devoted himself to natural history, archæologic, and philologic studies, under the personal superintendence of celebrated professors; William had made many journeys during the time; among others to Hanover, where he met Fried, Jacobi, Rehberg, Frau von Wangenheim, Brandes, and Zimmermann. Kunth was no longer with them; he had entered into official service, but lived in the house of Madame Von Humboldt for nine years, until her death, when her unqualified confidence entrusted him with the further direction of her family affairs.

But the brothers were now so far advanced in manhood that their peculiar mental qualifications were individually characterised. Alexander had a tendency for great universal studies with his comprehensive understanding, while William liked to tarry longer on a narrower limit, and in a more profound study of that limit he settled himself on the circumscribed spot for the time to make similar profound researches on another field afterwards.

CHAPTER II.

PRACTICAL APPRENTICESHIP—CIRCUMSTANCES—EARLY WORKS—PLANS
OF TRAVEL, AND HINDRANCES.

IN the second half of the year 1789 terminated the university life of Alexander as well as of his brother, in so far as it related to a higher comprehensive preparation for their future offices. But neither of the two brothers returned home; they obeyed a specific impulse of their individual nature, and entered at once into their life and intellectual pursuits, which were henceforward to diverge, even if in their tendency they were spiritually allied.

The breaking out of the French revolution affected the elder, William, educated for political life, more forcibly than Alexander, who calmly observed nature in its immutable laws. When, therefore, their first tutor, Joachim Heinrich Campe, who for some years had been canon and councillor in Brunswick, determined in July 1789 to run over to Paris, in order, as he expressed it, to be present at the funeral of French despotism (a wish in which he was bitterly deceived), he found, in addition to another young man, a companion in William von Humboldt, and arrived in Paris with him on the 3rd August. During that period Alexander lived for natural sciences, and his mind was directed to the extension of his knowledge of the earth, which made travelling his dearest wish, and this was fostered by his constant correspondence with Forster. It was particularly the formation of the earth which interested Alexander; he felt himself confirmed in his tendency by the reputation of Werner,

the celebrated geologist, and had made this field of natural science the favourite object of his studies. We, therefore, in the spring, 1790, with FORSTER and a certain VON GEUNS, find him making his first scientific journey to the Rhine, through Holland, and to England; and this first experience became the subject of his first literary production. It appeared in the same year under the title "Mineralogical Observations on some Basaltic Formations of the Rhine," and was intended to furnish the proof that this mineral was of neptunic origin, and that its formation, therefore, dated from the great water phenomena of the earthball. Forster collected materials on this journey for his splendid work, "The Views of the Lower Rhine."

It may with certainty be presumed that Alexander von Humboldt prepared himself for this journey with Forster from the winter of 1789 to the spring of 1790. We deduce this from his earnest striving after knowledge, and from the fact that this was a journey undertaken for scientific researches; he, therefore, spent a much more intellectual winter than his brother William, who enriched himself in a more genial manner. And here the difference between the two brothers becomes very evident, for while William, the elder, sought the life of society, and susceptible to all the impulses of higher feelings, early entered into ties of importance for his whole life, Alexander had neither found food for these phases of his soul, nor sought the opportunity, but had steadfastly kept to the one great plan—to found a future position by faithful researches into the spirit of natural life. William, urged by the enthusiastic feature in his character, *enjoyed* already the advantages of an æsthetic, select circle, but Alexander *studied* in his quiet intercourse with that world whose eternal laws were to become intelligible to him. While he devoted himself to the geologic and mineralogic preparatory studies for his first journey, and to a correspondence with Forster, prompted by the noblest friendship, William lived partly in Erfurt, in the society of the Baron Dalberg, especially in the

family of the president Von Dacheröden, with whose beautiful and intelligent daughter he betrothed himself, and partly in Weimar, where he made the acquaintance of Schiller through that family, and in consequence of his betrothal soon became his friend.

It is possible that Alexander's preference for a quiet spiritual intercourse with nature, whose secrets attracted him, may have been partly caused by physical reasons, which made him less qualified for the circles of society, which his brother frequented. He was still delicate, and had suffered much during the last five years, and the fear of being hindered by physical weakness from pursuing the great plans of his mind, induced him to satisfy all the physical demands of his nature, and thus prepare himself slowly for his great travelling plans which had inspired the imagination of the boy, and which had been matured, through Forster's influence, to his favourite idea and the purpose of his life.

But the practical course which he had chosen as his special department, had to be followed as consistently as his elder brother followed his. The latter was appointed councillor of legation and assessor to the court of Berlin, to make a trial of his capability, after which he intended to marry. Alexander, who had chosen the department of finances, wished now to prepare himself for a speedy entrance upon official life. The mineralogical studies, which had delighted him more and more, and which had become more attractive since his journey with Forster, excited in him the wish to make the mining department the special business of his life and of usefulness to the state. He therefore, in the same year, went to Hamburg to the commercial academy, under the direction of Ebeling and Busch, where he studied the practical part of bookkeeping, but occupied himself with mineralogy and botany besides. It is related, that in the winter of 1790-91, he often went out to seek mosses, which only grow in winter. His frame of mind here was a sign of the return of his physical strength, and conse-

quently of his more realizable hopes for the great travelling plans ever present to his mind's eye. He was, at this time, as industrious as he was cheerful, and Forster himself calls the letters written to him at this time, witty, full of humour, goodness and sensibility. Among his associates we must mention especially Christian Stollberg.

But Alexander did not stay long in Hamburg. His love for natural sciences, especially for geognosy (the science of the composition of the earth's surface) and the reputation of WERNER, director of the mining academy of Freiburg, who had introduced a new theory of geology on scientific principles, and who was at the same time the greatest geognost of the age, excited the wish in Alexander von Humboldt to go there likewise, and study the metallurgical sciences. In addition to this great inducement, it happened that a young man named Leopold von Buch, of Berlin, who, though younger, had formerly been intimate with Humboldt, in consequence of his interest in botany, was also studying mining, and was already in Freiburg. Humboldt therefore removed to Freiburg in the spring of 1791, and became a student at the mining academy at the same time that his brother William had determined to give up his official activity for a time, to retire from public life, and to devote himself to higher studies beside Caroline, whom he was soon to call his wife. When Alexander left Hamburg, he hastened to Berlin to enjoy the society of his mother, his brother who was remaining here until the summer, and his friend Kunth. He remained here till July for the recreation of his health, and for the preparations for his plans, and then went to Freiburg to his mining studies, where he devoted himself until March in the following year, with especial zeal to the sciences of mining and metallurgy.

With the spring of 1792, he entered upon his civic and literary sphere. He was about this time appointed assessor to the mining and smelting departments of Berlin, but was in the same year removed to

Bayreuth as superintendent of mines in the newly acquired Franconian districts, with the official commission, entirely to remodel the mining operations there.

The Baron von Hardenberg, who subsequently played such a prominent part in the Prussian administration, and with whom William von Humboldt entered into such a peculiar connexion and opposition, was, at the time when Humboldt came to Bayreuth, a young provincial minister of the Franconian principalities, and soon became an intimate friend of the young superintendent, by whom he was introduced to William von Humboldt in the following year.

As superintendent, Humboldt was at the same time general director of the mines in the principalities of Bayreuth and Anspach; and his indefatigable industry was directed, beside his scientific labours, to the erection of public institutions in these districts. He filled this position till 1795, when he voluntarily resigned it; his soul, during the whole period, worked secretly at the plan of a great voyage of discovery, but his immediate neighbourhood and the opportunities of his position called forth a multitude of learned works and practical observations, which spread his reputation as a clever naturalist. He employed himself much with various experiments on the physical and chemical laws of metallurgy, and took a considerable share in the dissemination of the theory of his teacher, Werner, who was an eminent supporter of the so-called Neptunismus in the formation of the world, and consequently ascribed all the formations of the solid earth crust to the influence of the waters. Alexander von Humboldt's treatises on these subjects may be found in the "Mining Journal" of VON MOLL, in Köhler and Hoffman's Journal, in Crell's Chemical Annals, as well as in the chemical and physical journals which Gren, Scherer, Gehler, Gilbert, and Poggendorf edited at that time; he also worked industriously for the French periodicals, "Journal de Physique," and "Annales de Chimie." In these treatises he laid down the foundation of his subsequent riper observations

and more fertile experiences ; for as he never treated cursorily, or isolated any material for general knowledge, he afterwards incorporated these youthful productions in a larger sphere, and we find them nearly all corrected and enlarged in his large works of travel, written at a matured age. A more considerable work, written in the year 1793, appeared under the title, "*Floræ Freiburgensis Specimen*," or "*Flora of Cryptogamic Plants of the neighbourhood of Freiburg*," in which he publishes the result of his observations of the mines of the district, made during his residence there, especially of the fungi growing in the shafts of the mines. These were appended to his Aphorisms from the chemical physiology of plants, which contain his experiments on the susceptibility of plants, their mode of nourishment, their colour, &c., and give a number of observations and opinions, which are still, after the immense progress the science has made in the last fifteen years, very valuable, and reveal the clear, penetrating power of observation of their author.

In 1794 he accompanied the provincial minister, Von Hardenburg, to the Rhine, whither a political mission had called him. This journey revived his longing for the realization of the favourite plan of his life, and he endeavoured therefore to realize his larger journeys by smaller ones. He accordingly prepared for his projected journeys by tours through the Alp districts and Silesia ; and his love of travel was partially gratified by an order he received from the government to make a trip into the province of Prussia and Poland, in his official capacity.

Although Humboldt's position was a favourable one for the cultivation of his favourite science, it did not suffice for his active mind, thirsting for an unknown world. From his youth upwards it had ever been his plan to make Transatlantic voyages of discovery, and on this plan he concentrated all his vigour.*

* Humboldt says of himself : " I had from my earliest youth felt a burning desire to travel in distant lands unexplored by Europeans. This desire characterizes a period in our existence in which life ap-

In the year 1795, he resigned his office of master of the mines, and went to Vienna, where he associated with the famed geognost Freiesleben, employed himself with botany, especially with the study of an excellent collection of exotic plants which he found here, and planned a journey into Switzerland with Freiesleben. His purpose was now to see Italy, especially the volcanic districts of Naples and Sicily. He went there with a Herr von Haften, but had to limit his plans to Upper Italy, without being able to reach the volcanoes, on account of the war. It was at this time that the great discovery of GALVANI—the discovery of that natural force which in our times has afforded such important practical results, and which was called galvanism, after its discoverer—was studied with great interest by Humboldt, and was variously experimented upon by him.

But his scientific industry received many sad checks about this time. His beloved mother had suffered from increasing delicacy for some months; his brother William, who, after an agreeable stay in Jena in 1794, had, with his young wife, entered into intimate social and intellectual relations with Schiller and Goethe, the philosopher Fichte, the historian Woltmann, the philologist councillor Schütz, the professor and antiquary Ilger, the theologian Paulus, the doctors Stark and Hufeland, &c., wrote to him in 1795, to Bayreuth, that he had in the month of June found his mother ill in Tegel, and had therefore postponed his intended return to Jena that winter. Now

appears to us as an unbounded horizon, where nothing has greater attractions for us than strong emotions of the soul and physical dangers. Brought up in a country which has no immediate connexion with the Indian colonies, and subsequently an inhabitant of mountain districts, which, far from the sea shore, are famed for their mines, I felt a violent passion for the sea and for long maritime voyages develop itself in my soul. All objects which we know only by the descriptions of travellers have an especial charm: our phantasy is pleased with whatever appears infinite and unlimited. The enjoyments we have to renounce seem to us to have greater charms than those which fall to our share in the narrow circle of our quiet life."

in the beginning of December, Alexander received the sad news from his brother, who had since the end of April 1796 returned to Jena, that their mother had died on the 20th of November.

This news, and the family affairs consequent thereon, called him away from his scientific and travelling plans for a short time, and in the beginning of the year 1797, he came to his brother to Jena, where he found William's wife ill in consequence of the birth of her second son.

He remained here until the spring, but the great plan of a West Indian journey had been so far matured, that he employed the time of his stay at Jena entirely with preparations for this important scientific undertaking. He found Freiesleben here, and entered into more intimate relations with Goethe, who had arrived there on a visit, and his practically-continued anatomical studies excited his brother William's and even Goethe's interest for them to such a degree, that the former heard private lectures on anatomy from Professor Loder with him, and Goethe often and with pleasure conversed with him on zoological preparations. Besides this, he continued the experiments on galvanism he had commenced at Vienna, and turned his attention chiefly to the laws of muscular irritation, and the disposition under galvanism of living nerves in living animals. He saw here a phenomenon analogous in many points to galvanism, and composed another work which gave new explanations on the efficacy of galvanic chains of animal substances on the susceptible muscular and nervous fibre. The interest in the development of this force in living animals continued, and we shall see how he makes observations during his travels on the peculiar development of electricity in the so-called electrical fish. A work on a similar subject which he had prepared in Jena, he could not publish himself, as his anxiety to commence his journey made him impatient of the necessary delays; he sent his manuscript to Blumenbach in Göttingen, who pub-

lished it with his own notes. In spring he left Jena, full of the plans for his West Indian journey. His friends there parted with him unwillingly, for even Goethe, who had been there only a short time on a visit, and had returned to Weimar in April, had experienced the instructive influence of Alexander's presence, and wrote to Schiller: "I have spent the time with Humboldt agreeably and usefully; my natural historic studies have been roused from their winter sleep by his presence."

Alexander's fondness for travel found a willing sympathizer in his brother William; they spoke only of travels, and dreamed of distant countries, and Schiller wrote at this time (14th April, 1797) to Goethe: "Although the whole family of Humboldt, down to the servant, lie ill with ague, they still speak only of great journeys." For the brothers had made the plan to travel together to Italy, after a short stay in Berlin for the regulation of the mother's inheritance, and from there Alexander was to go to Spain, and thence to America.

At the end of April, Alexander and his brother William with his family left Jena. To accommodate the latter, who wished to have some verbal communications with Wolff concerning an intended translation of "Agamemnon," he remained for some days in Halle, and then hastened to Berlin, to arrange the affairs of the inheritance, with the assistance of the faithful Kunth, in such a manner, that he was prepared at once for a long absence from Europe. The estate of Ringenwalde, in Neumark, had fallen to his share, while the elder brother took possession of Tegel, but he wished to sell it, that he might with the proceeds realize as soon as possible the project of his West Indian journey, which he had cherished for seven years, and which was an expensive private undertaking. The members of the Humboldt family therefore met in June in Dresden, where they regulated their affairs with the advice and assistance of Kunth, who had likewise joined them.

Alexander sold his estate to the poet Franz von Kleist, and confided the care of his property to Kunth, who also became manager of William's estates.

And now the long talked of plan of a journey to Italy together was to be realized. But a new delay took place; the intended stay of a few days grew to weeks—a relapse of fever of William's wife detained them all in Dresden. These premature delays in the long considered great plans induced Schiller to write to Goethe on the 23rd July: "That will be a fine journey! They must now already stay above their time in Dresden!" But their long stay was agreeably passed in the society of Körner, of the Prussian ambassador, Count Gessler, and the great philologist Adelung.

But greater and more unpleasant delays were to detain them.

Alexander went with his brother and family to Vienna, but here already their intended stay of a few days was involuntarily lengthened, because they had to await the issue of the impending warlike demonstrations between Austria and Bonaparte, and these were still delayed. Here they made the acquaintance of a Westphalian family, Von Haften, and Alexander found in Herr von Haften a former friend, who, like him, interested himself for geology. Besides, they found the young naturalist Fischer, afterwards Russian councillor, and while Alexander bore the suspense consequent on the warlike events more cheerfully in scientific studies of nature, his brother William passed the time in the imperial library with the young philologist Bast.

But public affairs had now taken such a turn that a journey to Italy was no longer possible. For although the French had been almost driven out of the south of Germany in the former year by the victories of the Archduke Charles, yet Bonaparte's bold and victorious tactics had now gained other and more important advantages, for by his domination of the Adriatic provinces, and by other victories in Italy, he

forced Austria to negotiations which were considerably protracted, but which allowed no doubt of Italy's fate.

Under these circumstances the brothers were forced to give up their plan of travelling to Italy, especially when they heard that Goethe, who also wished to go there, could only for the same reasons proceed as far as Switzerland.

This news that Goethe was in Switzerland determined Alexander to realize his plan of a Swiss journey. As the family of Humboldt had determined to visit Paris, Alexander made up his mind also to accompany his brother thither. But then the events of the 18th Fructidor took place, by which the peace party was overthrown, and by which Austria was forced to accelerate the war negotiations by greater compliance. Schiller, who believed these French events would induce the Humboldts to give up their journey to Paris, was as much deceived as Goethe, who, being still in Switzerland, towards the end of September expressed his belief to Schiller that the Humboldts, after their journey to the Alps, would pass the winter very sociably at Jena. It was, on the contrary, the plan of the brothers Humboldt to draw nearer the French boundary at the foot of the Alps, and to await the hoped for conclusion of peace between Austria and the French republic here. Alexander intended in the meantime to give his scientific attention to the Swiss soil, so fertile and interesting for his geognostic studies.

The family, therefore, left Vienna in the beginning of October 1797, and Alexander accompanied them to Salzburg, where he met his friend and Freiburg fellow-student, Leopold von Buch, and soon renewed his scientific intercourse with him. As William, in certain anticipation of an impending peace, wished at once to continue his journey westward, and as Alexander was attracted by Leopold von Buch and the mountains, the brothers separated, and William travelled with his family to Munich, Basel, and, as the

peace of Campo Formio was concluded on the 17th October, to Paris, while Alexander wandered with Leopold von Buch for scientific purposes in the Alps of Salzburg and Styria, tarried some time in the mountains, and remained in Salzburg with his friend during the winter of 1797-98. They had to give up the idea of a trip into Upper Italy, in which Herr von Haften was to have joined them.

In the spring of 1798, Alexander left Salzburg and went to Paris, where his brother was still staying, whose house was the *point de ralliement* for all the educated Germans. But Alexander von Humboldt's arrival in Paris had higher plans; he wished to meet with opportunities for his great journey. In Salzburg already he had determined on joining an expedition to Upper Egypt, but the political events forced him to abstain. He had met with a man who was passionately devoted to the fine arts, and whose soul was longing for a journey to Egypt. This man, who had before been on the coasts of Illyria and Greece, had made the proposal to him to examine the old monuments along the Nile as far as Assuan for a period of about eight months. Humboldt made the condition that he should continue the journey over Palestine and Syria on their return from Alexandria. The promoter was very anxious for Humboldt's company, as his accurate knowledge of the classic nations of antiquity, which he had acquired about this time for this journey would be of infinite service to him. The political aspect of Europe destroyed this plan also. But his ardent spirit was not discouraged by these disappointments—his projects remained unaltered. He still had the plan of visiting the American continent; it was the purpose of his life, and he had, since his eighteenth year, prepared himself for it by shorter travels in Europe, in order to be able to compare his geological experiences in the formation of America, and to gain the necessary practical knowledge of the instruments calculated to assist such researches as he anticipated making. Thus intellectually prepared he

was, at the same time, in possession of the pecuniary means requisite for such gigantic plans ; his striving soul, placed by a favouring fate in the happiest circumstances of life, knew not the wants and privations which often retard the most distinguished men in the execution of their plans, and delay their development and usefulness. He experienced some disappointments which could not destroy his hopes, but only delayed their fulfilment for a short time.

When the Egyptian journey was given up, Alexander von Humboldt heard that the national museum in France was preparing an expedition which, under command of Captain Baudin, was to make a voyage of discovery to the southern hemisphere. His anxiety to examine unknown countries drove him quickly to Paris to join the expedition, if necessary, at his own expense. With this intention, he came to his elder brother in Paris. Two naturalists, Messrs. Michaux and Bonpland, were appointed for this expedition, to direct the scientific researches ; and Humboldt's first care was to make their acquaintance. He became more especially intimate with Aimé Bonpland. This young man was one of the most distinguished students of the military college, and of the botanical gardens of Paris, and found a congenial friend in Humboldt. Humboldt's participation in the expedition was welcome, and the scientific preparations for the great undertaking were zealously made by him. He learned Arabic, which called his brother's attention to the study of American languages ; he became acquainted with the most eminent naturalists and mathematicians of Paris. His "RESEARCHES ON THE COMPOSITION OF THE ATMOSPHERE," which he had commenced alone, he continued partly with the assistance of the celebrated natural philosopher GAY-LUSSAC, with whom he undertook eudiometric investigations of the chemical analysis of the atmosphere, repeating them at all seasons, and in all temperatures, and by which he rendered important services to a juster knowledge of this subject. These learned studies

were founded on others which he had no doubt commenced before, during his official and scientific relation with the mines, namely "on subterranean gases," which he must have finished here in Paris, beside his other chemical labours, as the work was published at the commencement of the following year, when he had left the country.

But at the commencement already of his great journey under Capt. Baudin, he experienced a painful disappointment. The threatened resumption of a war with Italy and Germany destroyed the intended expedition to the southern hemisphere, as the French government needed the funds appointed for the purpose. Humboldt's determination to accompany an expedition of French learned men to Egypt, could also not be executed, because, after the battle of Aboukir, which the French lost to the English under Nelson, the communication with Alexandria ceased.

But Alexander von Humboldt had made the journey to another quarter of the world such a firm purpose of his life, that repeated disappointments could not disturb him in his preparations for the undertaking; he therefore continued to collect the necessary materials and knowledge for the journey, although he had to wait again for another opportunity. In Bonpland he found a congenial spirit, for he also was determined, at all hazards, to explore unknown regions.

In the autumn of the same year, Humboldt made the acquaintance of the Swedish consul Sciöldebrand, who passed through Paris with the intention of going to Marseilles, where he was to embark on a Swedish frigate, which was expected there in October, and go to Algiers on a special mission. Humboldt thought he had at last found a suitable opportunity for commencing a scientific journey through Egypt and Africa, and Bonpland offered to accompany him. They proposed subsequently to join the caravan to Mecca, and to go to East India across the Persian sea. As the Swedish ambassador promised them the sea passage, they soon made a plan for their journey;

they intended to examine the high mountain ridges of Morocco, and possibly to join the learned men who had accompanied the French army to Egypt.

Towards the end of October, 1798, Humboldt left Paris, and went to Marseilles, to await the Swedish frigate. He was quite prepared, and accompanied by his friend and fellow-traveller Bonpland. The leave-taking between the brothers was a sad one, for both had been accustomed to live in intellectual intercourse with each other, and to be each the complement of the other. Alexander von Humboldt speaks thus of this separation: "I left my brother, who, by advice and by example, had exercised a great influence over the direction of my ideas. He approved of the reasons which induced me to leave Europe; an inward voice told us we should meet again. This hope alleviated the pain of a long separation."

But his cup of disappointments was not yet full; it seemed as if fate had determined to detain him on the European shores, or to let him seek another, better course. For two months he waited at Marseilles with his friend Bonpland, but the Swedish frigate, which was to take the consul to Algiers, did not come, and at last the news arrived that she had been injured in a storm on the coast of Portugal, and would arrive at Marseilles in spring.

Humboldt thought of a return or of a relinquishment of his plans as little as his friend Bonpland; they determined to spend the winter in Spain, to occupy themselves there scientifically, and to seek some other ship's opportunity in the spring, especially as a journey to Morocco for scientific purposes seemed scarcely advisable, disturbances having occurred in Tunis.

With the commencement of the year 1799, the two travellers started for Madrid, but the pilgrimage thither was at the same time a scientific excursion. Humboldt being furnished with excellent instruments for an exploring journey, determined the altitude and astronomic position of many important points, ascended

the peaks of the Montserat and ascertained the real altitude of the central plain of Castille; while Bonpland explored the vegetable kingdom, and culled rich fruits therefrom. Humboldt found the climate of Castille much colder than that of Toulon or Genoa; he found the heart of Spain covered with sandstone, gypsum, rock salt, and Jura limestone; the mountains in many parts overgrown with dates, bananas, sugar cane, and other plants indigenous to northern Africa, which yet did not suffer from the here prevailing winter cold.

In Madrid their travelling genius, which had hitherto frowned on them, suddenly turned in their favour. Humboldt found here the Saxon ambassador, Baron von Forell, who took great interest in his projects, recommended him and his companion to the liberal-minded Spanish minister, Don Mariano Luis DE URQUIJO; and by his intercession, Humboldt was introduced to the court in Aranjuez, in March. Here he found the opportunity of explaining to the king his scientific plans, and their probable advantages and practical utility, and was fortunate enough to incline the king most graciously in favour of his plans. He received the unusual royal permission to visit and examine all the Spanish possessions in America, without any limitation or inconvenient condition, and the minister promised him his mediation for protection and promotion of his plans. It is strange that the geographical discoverer of America, Columbus, and the scientific explorer, Humboldt, should both have been assisted in their journey by Spain. The joy which Humboldt and Bonpland felt at this sudden favourable turn of their circumstances so increased their ardour, that they determined to make use of the royal permission as speedily as possible. They therefore lost no more time in preparation, but left Madrid in the middle of May, to go to some harbour, and to explore Spain on the way. With this intention, they passed through a portion of old Castile, the provinces of Leon and Galicia, till they came to the port of Corunna.

With overflowing joy Alexander communicated the near fulfilment of his long-cherished plans and wishes to his elder brother at Paris, and his descriptions of Spain, which were painted in the most glowing colours by the animated pleasure he felt, persuaded William von Humboldt to a journey there. Alexander must have described the beautiful Spain to his brother so attractively already in February, when he was still on his way to Madrid, for Frau von Humboldt wrote home at that time that her husband intended to go alone to Madrid, perhaps even to Lisbon, at the end of March, while she would remain in the Pyrenees with the children. The subsequent descriptions of Alexander, on his way from Madrid to Corunna, could not have been less attractive and less inducive to William's determination, for his journey took him past the beautiful mountain ridges and rocks of Galicia, and the granite peaks of Corunna, where he made their formation a subject of interesting inquiries, and planned a pleasing picture of the breaches made by the sea, which must have violently separated these mountains which, millenniums ago, were united ridges and precipitous rocks. These descriptions, written in the charming style of an Alexander von Humboldt, were probably the cause that the modest plan mentioned by Madame von Humboldt in her letter was extended by her husband, and that the whole family commenced their pilgrimage to Spain in July.*

Alexander arrived in Corunna with his companion; but here another hindrance threatened to prevent their departure. The English had blockaded the

* William von Humboldt also wrote "Notes" on this trip, which clearly show the intellectual intimacy existing between the brothers. As Alexander everywhere, on his scientific journeys, turns his observation comprehensively to ethnographical, philological, historical, and philosophic subjects, which were properly William's sphere; so William, whose subjects were more the ideal and mental developments of life, has also given splendid descriptions of inanimate nature and of the world of reality. Both brothers show, in these conceptions, their common intellectual origin and education.

port, in order to cut off the communication between Spain and its colonies. The two travellers had recommendations from the Spanish minister and from the chief secretary of state to Don Raphael Clavigo, who had for some time been superintendent of the ports, but he could do nothing more than, in obedience to the commands of the minister, to make their stay as agreeable as possible, for they were obliged to wait until the blockading English fleet should permit their departure. A ship, the corvette Pizarro, was lying in the port and was intended to sail to Mexico and Havannah, but had been detained by the blockade. Clavigo advised Humboldt to go on board that ship, and wait for a favourable opportunity of putting out to sea. The travellers followed this advice, and as they were anxious for their valuable instruments, and expressed the wish also to visit the island of Teneriffe, Clavigo commanded the captain of the Pizarro not only to provide a safe place for Humboldt's scientific instruments, but also to stay at the above-named island as long a time as the travellers would require to visit the port of Orataya, and to ascend the peak of Teneriffe.

The few days which elapsed before their effects could be shipped were spent, partly in a classified arrangement of the plants collected in Spain, partly in correspondence, partly in short trips to the little town of Ferrol, situated at the other point of the bay, where they made experiments on the temperature of the sea and the decrease of heat in the superincumbent layers of water. By these experiments they found the result, so important to navigators, that the neighbourhood of a sand-bank is revealed before the lead can be made use of, by the quick decrease in the temperature of the water, and that the seaman can therefore perceive the approach of danger much sooner by the thermometer than by the lead. At the moment of departure Humboldt wrote a letter to Captain Baudin, in which he reminded him of the promise he had given, that if the delayed expedition

should still be realized, and he should steer round the Cape of Good Hope, Humboldt would join him either at Monte Video, Chili, or Lima, or at whichever of the Spanish colonies he might be. This letter had important consequences. Through false newspaper reports he learnt in that distant country that Baudin had really commenced his journey, and Humboldt, mindful of his promise, travelled with Bonpland to Portobello over the isthmus of Panama to the coasts of the South Sea, although he was at the time in Cuba, and thus made a journey of more than eight hundred (German) miles in a country which he had not intended to visit. We shall have occasion to revert to this.

A violent storm, which commenced with a high tide and a flood from the north-west, obliged Humboldt and Bonpland to interrupt their experiments, but became extremely favourable to them for their travels. The two English frigates and the liner which had blockaded the harbour were forced by the violent storm to quit the Spanish coast and make for the open sea; Clavigo's advice was to seize the opportunity hastily to embark their instruments and their luggage, and not to let the temporary absence of the English men-of-war pass without an attempt to leave. Humboldt and Bonpland immediately set sail, but were obliged, on account of the increasing west wind, to tack about for several days. At last, on the afternoon of the 5th of June, after having succeeded in eluding the vigilance of the English cruisers, they steered for the open sea, passed the Hercules tower, then the light-house of Corunna half-an-hour later, and in the evening, favoured by the fresh breeze, they reached the open agitated sea.

Humboldt's heart must have beaten joyfully when he at last saw his hope and his longing, cherished for nine years, and so frequently disappointed, on the eve of fulfilment; what must have been his feelings when, at nine o'clock in the evening, he saw the light of a fishing-hut of Sisarga as the last object on the

European coast, and which, in the increasing distance, was scarcely distinguishable from the stars which rose on the horizon! His looks and Bonpland's were involuntarily fixed on it. "Oh," he exclaimed, years afterwards, "these impressions will never be erased from my memory! How many recollections does not one bright spot shining unsteadily over the agitated waves in the darkness of night, and pointing out the shores of our native earth, recall to the imagination!"

CHAPTER III.

THE OPEN SEA—THE FIRST STEP ON A FOREIGN SOIL—TENERIFFE—
CUMANA—EARTHQUAKES—DEPARTURE.

THEY sailed quickly; the sea current, propelled by the gulf-current which flows from the Azores towards the Straits of Gibraltar and the Canary Isles, and which drives round the waters of the Atlantic Ocean in a continual circular course of 3800 miles, occupied the attention of the travel-glad naturalists. An English cruising fleet seen in the distance, determined the captain to diverge from the originally-intended course during the night, still, however, steering towards the thirtieth degree south. Sea swallows and dolphins accompanied Humboldt so far. On the 11th of June he for the first time enjoyed the surprising appearance of the sea covered by an innumerable quantity of Medusæ, which passed the vessel with great velocity, and which, by their metallic lustre, formed an agreeable contrast to the azure-coloured ocean.

A first marine voyage fills such a mind as that of Humboldt's with new events, new views and experiences, every hour. During the night he saw Medusæ emit electric sparks at the moment when the act of catching them communicated to them a slight shock. Between Madeira and the African coast he perceived a perfect rain of shooting stars, which became more vivid the further south the ship sailed. This phenomenon, which is seen sometimes in the South Sea, in the neighbourhood of volcanoes, and in many parts of Europe, has been made the subject of especial

study by Humboldt, and has led to a new explanation of this periodically-recurring rain of shooting stars.

Humboldt and his companions found another greeting from their native land. A martin alighted on a sail, so exhausted, that it could be caught with the hand ; it was the last, and, for the season, unusual messenger from the land, whom longing had urged across the sea.

New scenes of brilliant natural phenomena increased in the vicinity of the islands now rising on the horizon, when the sea was calm and the sky clear. Humboldt and his friend often spent a part of the night on deck ; there they watched the volcanic points of the Canary island Lancerote, illuminated by the moonlight, with the beautiful sign of the scorpion twinkling above them, as the moon was gradually obscured by the midnight clouds rising from behind the volcano. Here they saw on the indistinct fading shore, fires moving to and fro, which fishermen, preparing for their work, probably carried about on the coast, and Humboldt was reminded of the traditional moving lights which the old Spaniards, the companions of Columbus, had perceived on the island of Guanahani the night which preceded the discovery of America. And this time the twinkling flame was a good omen for Humboldt, the scientific Columbus of modern days.

The travellers sailed past the small islands of the Canary group, whose appearance, with their shores, their blunt conical rocks and volcanic elevations, pleased them much, and whose sea furnished them interesting marine plants ; a blunder of the captain, who mistook a basaltic rock for a fortress, and sent an officer to it, gave them the opportunity of landing on the small island La Graciosa. It was the first non-European soil which Humboldt trod on, and he has expressed his feelings on the occasion in these words : " Nothing can express the feeling of a naturalist when, for the first time, he stands on a soil which is not European. His attention falls on so many objects,

that he finds it difficult to classify the impressions he receives. With every step he thinks to find a new specimen, and in this frame of mind he often fails to recognise those which are most common in our botanic gardens, and our historic collections."

The celebrated peak Teyde on Teneriffe, from whose appearance Humboldt had anticipated great pleasure, was concealed by the mist of the atmosphere. As this rock is not covered by eternal snow, it is indeed rarely visible at a great distance, even though its sugarloaf point reflects the white colour of the pumice stone which covers it, as blocks of black lava and a fertile vegetation surround it. When Humboldt and his companion had arrived at Santa Cruz, on Teneriffe, and had received from the governor, in consequence of their recommendations from the court of Madrid, permission to make excursions in the island, they made use of it the same day, after having been welcomed and entertained in the most friendly manner in the house of Major Armiago, commander of a regiment of infantry. In the garden of their kind host, Humboldt for the first time saw the banana tree, hitherto only known from conservatories, the papaya (melon tree) and other tropical plants, growing in the open air. As, on account of the English blockade, the ship on which Humboldt travelled could only be permitted to remain four or five days, Humboldt and Bonpland hastened to reach the port of Orotava, and thence to take a guide to the peak. On the way, they met a quantity of white camels, which are here used as beasts of burden. But it was the ascension of the peak of Teneriffe on which Humboldt had fixed his greatest expectations. A beautiful road led from Laguna, a town situated 1620 feet above the sea, to the port of Orotava, and then a landscape of incomparable sweetness surrounded him. Date and cocoa nut trees cover the coast, higher up the mountains flourish dragon trees, vines cluster round the precipices, and the occasional chapels peep out between orange trees, myrtles and cypresses; all the walls are

overgrown with mosses and ferns, and while above, the volcano is covered with snow and ice, an eternal spring reigns in the valleys. Thus surrounded by a perfect paradise, Humboldt and his companion came to Orotava, and from here they wended their way towards the volcano, a stony path lying through a beautiful chesnut grove.

Teneriffe was indeed calculated, as the first tropical country which Humboldt saw, to heighten his love for travelling, and to cheer and encourage the mind. The naturalist Anderson, who accompanied Cook on his third voyage round the world, advised all the doctors of the world to send their patients to Teneriffe, where the beauty of nature, and the evergreen picture of the most fertile vegetation, would give peace and speedy recovery to the oppressed mind. And he has not said too much, for Humboldt also describes the island as an enchanting garden, and he felt the influence of this glorious natural picture with an inherent sense of beauty, although, to the eyes of geologists, the island appears only as an accumulation of interesting volcanic formations of different ages.

Humboldt ascended the peak with Bonpland, and made most interesting observations on its formation, its geological history, and the consequential circles of the vegetation surrounding it. But he made here one very important general observation, namely, that the inorganic forms of nature, such as mountains and rocks, resemble each other in the most distant districts of the world, but that organic forms, such as plants and animals, vary from each other. As Humboldt sailed past the coasts of this group of islands he seemed to recognise known formations of mountain, to be transported even to the Rhine shores near Bonn, while the forms of the animal and vegetable world change with the climate, and vary according to the depth or altitude of their position. The rocks, older perhaps than climatory influences, are the same in both hemispheres. But this diversity in plants and animals, depending on the climate, and the height of

the soil above the sea, aroused in Humboldt that great interest in the geographical diffusion of plants and animals, which, by his continued researches in America, made him entitled to rank as the first scientific founder of this study. How important the influence of altitude is on this propagation of plants he had perceived already during his ascension of the celebrated peak of Teneriffe. There he passed first through the regions of tree-like heaths, then he came higher up to a belt of ferns, higher still a wood of juniper and fir trees ; over that was a plain two hours and a half journey in breadth, covered with Spanish broom, after which he came to the pumice-stone soil of the volcanic crater, where he was welcomed by the beautiful retama, with its sweet-smelling buds, and the wild indigenous peak goat.

It might have been expected that Humboldt would continue his geological studies here on the crater of a volcano, and he did so most successfully, for he collected new materials for his subsequent observations on, and explanations of, the volcanic influence in the formation of the earth, and the phenomena of earthquakes.

A glance at the sea and the coast showed Humboldt and Bonpland that their ship Pizarro was under sail, and this alarmed them much, as they feared it might prepare for departure without them. They left the rock as speedily as possible, and rejoined their ship, which had already waited for them to take its departure.

But Humboldt had gained important matter for his future discoveries during this short excursion. The group of Canary Islands had become an instructive book of infinitely rich contents, whose diversity in a small space necessarily led a mind like Humboldt's to further universal study. He felt the true mission of a naturalist, and the importance of special research. The soil on which we move in joy and sorrow is the most mutable, most active in destruction and reconstruction—a power rules in it which ar-

ranges and forms the shapeless, which chains the planets to the sun, which gives the living breath of warmth to the cold mass, which forcibly destroys the seemingly-complete, which a human being in his narrow sphere considers as a gigantic whole, and replaces it by new forms. WHAT IS THIS POWER? HOW DOES IT CREATE, HOW DESTROY? These were the next great questions which forced themselves on Humboldt's mind, and to whose scientific solution he determined to devote his life. "What is a day of creation?" he exclaimed. "Did one revolution of the world round its axis suffice for it, or is it the result of a course of millennium? or did the continent rise out of the water, or did the water sink into the depressions of the earth? Was it the force of fire or of water which raised the mountains, levelled the plains, and placed boundaries to land and sea? What are volcanoes? How did they originate, and how do they act?"

Teneriffe gave him the first answer. He perceived the truth of what he had already made the principle of inquiry,—to look upon all specialities only as the parts of an intimately connected chain of universal causes and effects, running through all the laboratories of nature, to find herein the cue in the apparent labyrinth of infinite variety, and therefore not to overlook the seemingly insignificant with carelessness, but rather to see the great in the little, the whole in the part. Seen in this spirit, the volcano of Teneriffe was for Humboldt a key to many great mysteries of universal life; he perceived the various means which nature applies to form and destroy, and he thus made the history of the single one the rule for the history of the universal. The fire of the volcano which he ascended on Teneriffe was long since extinguished, but its traces seemed to Humboldt as the gigantic letters in explanation of the tremendous element which once pervaded our earth, which broke through the earth's crust, which buried men, animals, plants, and towns, and which still propagates its veins in the

depth, to shake the earth here and there, or to explode with flame and glowing lava through its safety-valves, the volcanic craters. And Humboldt taught us to understand all this!

We will now follow the vessel on which Humboldt and his friend were travelling over the sea, on their course to central America.

On the way the travellers occupied themselves principally with the sea winds, which became more equable the nearer they approached the African coast. The mildness of the climate and the calmness of the scenery here, increased the charm of the journey; and when Humboldt had reached the northern regions of the Cape Verd Islands, the great swimming seaweeds attracted his attention: they form banks of marine plants, and are probably rooted in the bottom of the sea, as branches eight hundred feet long have been found. But the human mind has also its claims on such a long voyage; wherever the eye turns it sees waves, clouds, or sky; it longs for the sight of familiar objects. The ship's crew seeks a strange person,—it would like to hear a voice from a strange mouth—from another country. It is therefore always a joyful occurrence if another vessel passes; all rush to the deck; they call, ask the name and destination, sign to each other, and mutually vanish from each other's horizon. The scientific labours of Humboldt and his companion, spite of the rich matter of new and unusual things which every day brought them, could not repress the emotions of his mind. Humboldt also rejoiced to see a sail appear on the distant horizon, but he felt the first pain of the mariner when gradually the mast and the remains of a shipwrecked ship covered with seaweed hove in sight; the wreck floated on like a grass-covered grave: where might be the remains of those who expired in the destroying storm, with a last struggle for their life! These feelings involuntarily obtruded themselves on the travellers.

But a beautiful, inspiring sight awaited Humboldt. In the night of the 4-5 July, under the sixteenth

degree of longitude, he saw the brilliant constellation of the southern cross; and when he gazed for the first time on this sign of a new world, he felt with deep emotion that the dreams of his childhood were realized. What he felt at this hour of his life, he betrays in his own words: "When one begins to cast a look on geographical charts, and to read the narratives of travellers, one feels a kind of preference for certain countries and climates, of which preference we can give no satisfactory account in riper age. These impressions exercise a sensible influence on our plans, and we endeavour, almost instinctively, to approach nearer to those objects which have long had a secret charm for us. When I first studied the stars, I was agitated by a secret fear, unknown to those who lead a sedentary life; it grieved me to resign the hope of seeing the beautiful constellations which are situated near the south pole. Impatient to explore the equatorial regions, I could never raise my eyes to the starred vault of heaven without thinking of the cross of the south pole, and without recalling to mind the beautiful passage in Dante's 'Inferno,' in which he refers to it." The whole ship's company, especially those who had already inhabited the American colonies, shared the satisfaction which Humboldt felt at the sight of this constellation. In the solitude of the ocean, a star is greeted as a friend from whom one has been long separated; and above this, a religious feeling endears this constellation to the Spaniards and Portuguese, for it was the same constellation which welcomed the first mariners of the 15th century, when the stars of their native north vanished from before them.

But Humboldt was also to experience the terrible scourge of illness on board a ship, during the last days of his journey. A malignant fever broke out, which grew more serious the nearer the ship approached the Antilles. A young Asturian of nineteen years of age, the youngest of the passengers, died, and his death made a deep impression on Humboldt, partly

from the circumstances connected with his journey,—for he had undertaken it to seek his fortunes and provide for a beloved mother who had put her trust in him. Humboldt was sitting on the deck with Bonpland, and filled with sad reflection; the fever in the cabins grew more and more malignant; his eye rested on a desert, mountainous coast which the moon now and then gleamed on through the dark clouds. The slightly agitated sea glowed with a weak phosphoric light; nothing was heard but the monotonous cry of some sea birds seeking the coast; a deep silence reigned, and Humboldt's soul was filled with painful thoughts. All at once—it was about eight o'clock in the evening—the death bell tolled mournfully; the sailors knelt down to say a short prayer by the corpse of the youth, who the day before had been well and merry; it received the catholic blessing in the night, and was committed to the waves at sunrise.

With these mournful feelings Humboldt approached the shores of the land which had smiled on him in his boyish dreams, and to visit which, as the aim of his life, and as the bright image of tropical nature, he had so cheerfully set sail. But fate, which had hitherto only sent disappointments and obstacles in Humboldt's path, to induce him to wait for better and more fortunate opportunities, fate made the malady with which the ship was afflicted serve to produce an important diversion in his plans. The non-affected passengers, alarmed by the malignancy of the fever, had determined to land at the first port, and reach their original destination, Cuba or Mexico, by another opportunity. They induced the captain to run into Cumana, a port situated on the north-eastern coast of Venezuela, and there to land the passengers. This determined Humboldt also to change his route, to visit first the scarcely known coasts of Venezuela and Paria, and to proceed to New Spain afterwards. Here he could find the beautiful plants which he had once admired in the conservatories of Vienna and Schönbrunn, growing luxuriously and naturally on their

native soil, and there lay for him an irresistible charm in exploring the heart of this land, which was still a great mystery in the natural sciences. Humboldt and Bonpland landed at Cumana, let the ship which had hitherto carried them sail on, and thus the accidental epidemic on the ship was the cause of Humboldt's great discoveries in these regions—from the Orinocco to the boundaries of the Portuguese possessions on the Rio Grande. This circumstance may also have been the accidental cause of the health and the unendangered life which they enjoyed in these equinoctial regions, for a dreadful epidemic raged at Havannah, whither they would have gone but for their premature departure from the ship, and this epidemic carried off many of their travelling companions.

The voyage from Corunna to Cumana, which had lasted forty-one days, had been very fertile in physical observations for Humboldt and his companion. With the assistance of the materials already prepared by science he had made important observations on the temperature of the atmosphere. The material difference between the atmospheric temperature on the sea or on land, independent of the change of season and the locality, seemed remarkable to him ; he invariably found that the ocean was warmer than the atmosphere, and that the readjustment of the balance between the two elements was prevented by the winds, which hindered the absorption of caloric during evaporation, during which, as is well known, caloric is always discharged.

Humboldt made other interesting researches on the blueness of the sky. Not only was his eye gladdened by the splendid change of colour from the pale green to the brilliant yellow and red of the ocean sky, he did not, like an ordinary admirer of nature, only let the momentary impression at the sight of the azure tint of the high vault remain on his mind, but he thought seriously on the effect and cause of the phenomenon, and thus he was the first naturalist who has made scientific observations on the colours of the sky over

the seas of the equinoctial regions of the earth, where days and nights are equal. After Deluc had called attention to the blue colour of the sky in 1765, and had asked for its cause and conditions, Saussure invented an instrument in 1791, which he called a cyanometer-measurer of the blueness of the sky, by which the degree of the colour is shown on the tables, arranged on an ascending scale from the palest to the darkest blue. Humboldt made great use of this instrument on this voyage, and ascertained, by the colour, the degree of blueness, the accumulation and the nature of the non-transparent exhalations of the air.

For this purpose he watched the colour and form of the rising and setting sun, and ascertained by it the duration of fine weather, the strength or gentleness of the wind, and discovered a paleness or unusual diversion of the setting sun to be the infallible sign of an approaching storm. He used the instrument also to measure the colour of the sea, which is generally green, and here he also found changes which often turned the sea during fine weather from the deepest indigo blue to the darkest green, or slate grey, without any atmospheric change being perceptible. He proved also that the expression "the ocean reflects the sky," was a purely poetical, but not a scientifically correct one, as the sea is often blue when the sky is almost totally covered with light white clouds. Beside these observations Humboldt collected many new facts on the moisture of the atmosphere, and on the electricity and attraction of the magnetic needle.

Arrived at Cumana, a port in which the traces of an earthquake which had taken place eighteen months before were yet to be seen, Humboldt was introduced to the governor of the province by the captain, and received with great civility, while the fever-stricken passengers who were brought on shore found a touching sympathy and ready assistance from the inhabitants. When Humboldt had seen the shore, the town, the fortress, and the landscape in

general, in which the living ramparts of impenetrably-intertwined prickly cactus, and the crocodiles which live in the moats of the fortress and guard it, were a new and peculiar feature ; after he had made himself acquainted with the customs of the inhabitants, which had many peculiarities, and might almost be called amphibious, as children and adults spend a few hours daily on the river Manzanares, where they put chairs in the water on moonlight nights, and smoke their cigars on the river, and even invited Humboldt to join in this pleasure ; he directed his attention to the volcanic soil on which he was living, for Cumana was often visited by earthquakes. He studied the history of these earthquakes in order to find new views, and to be able to regulate the direction and extent of those shocks under a yet-to-be-discovered law. On the 9th August, 1799, he made his first excursion with Bonpland to the island of Araya, which in former times was famed for its slave-trade and its pearl-fisheries, and where, after wandering through a wood of torch-thistles, he came to a hut inhabited by an Indian family, where he was hospitably received and accommodated for the night, and then remained two days in the neighbourhood. He soon afterwards made a second excursion to the missions of the Chaymas Indians, a district filled with a wonderful animal and vegetable world, and a people living almost in the rudest state of nature. Here he wandered on a soil rich in springs, beneath trees of gigantic size covered with lianas (tremendous parasitical plants), down the valleys to the huts of the Indians, surrounded by sugar-cane, melon-trees, pisang, and maize. Describing his stay here, he says : " If a traveller enters for the first time the woods of Southern America, nature reveals herself to him in a surprising form. What he sees is little calculated to remind him of the descriptions which celebrated travellers have made of the shores of the Mississippi, of Florida, and other moderate regions of the New World. But here (in Central America) the traveller

feels at every step that he is not on the boundary, but in the centre, of the torrid zone. He does not know what charms him or excites his attention the most; whether it is the calm repose of solitude, or the beauty of separate varying forms, or that force and freshness of the vegetable life which distinguish the climate of the tropics. It seems as if the soil, covered with vegetation, had not room enough for its development. Even the trunks of trees are overgrown with a close green covering. If one would carefully transplant the orchides, the pepper or pothos-plants, which grow on a single locust-tree or on an American fig-tree, one might cover a large tract of land. The same creeping plants which grow on the earth, ascend also the summits of the trees, and extend their branches, a hundred feet from the ground, from one tree to the other."

How engrossingly and how variously must not these sights have impressed Humboldt's mind in this great vault of vegetation, and how they must have enriched his mind with new unknown forms of nature! Here for the first time he admired the bottle-shaped, artistically-formed nest of the Oriola, the thrush-like bird, whose somewhat hoarse cry is so penetrating that it is heard above the sound of gushing waterfalls. On this excursion he saw the monastic life of the here existing mission, whose old prior smiled superciliously at Humboldt's researches, experiments, instruments, and dry plants, and maintained that of all the pleasures of life, not excepting sleep, none could be compared with the relish of a good piece of roast beef.

Humboldt wandered with his friend Bonpland further to the Cuchivano ravine on a path rendered unsafe by jaguars (American tigers). Flames are emitted from this ravine, and this led Humboldt to interesting observations on volcanic phenomena and on earthquakes. The inhabitants of the district also made curious communications and prophecies on the increase of earthquakes in this region and in the pro-

vince of New Andalusia, which were only too soon realized. On the 12th August, the wanderers, after much climbing, reached the chief station of the Chaymas mission, the cloister Caripe, where Humboldt passed some especially calm and beautiful nights, which he did not forget in later years. "Nothing," he says, "can be compared to the solemn repose which the contemplation of the starry heaven in this desert affords." When at the fall of night his eye rested on the meadow-plains bounding the horizon, he seemed to see the starry vault of heaven supported by the surface of the sea. The tree beneath whose shade he was resting, the luminous insects floating in the air, the bright southern constellations, all this forcibly reminded him of the distance from his home; and when, in the midst of this foreign nature, the cowbells or the bull's bellow was suddenly heard from the valley, then the memory of the fatherland rose brightly before him. Humboldt celebrated here a solemn reminiscence of home; these sounds seemed to him as distant voices from beyond the sea which transported him to the other hemisphere, and the inexhaustible spring of joy and of sorrow gushed forth in his imagination.

On beautiful mountain paths alternating with marshy, heavy roads, Humboldt and his companion visited the other stations of this mission, especially San Antonio, and Guanaguana; and he also visited the Guacharo cave, situated in the Caripe vale. This cave is the dwelling-place of a night-bird, frequently found here, which cannot bear the light of day, is three and a half feet in breadth across the wings; which utters an unpleasant scream, echoing along the vaulted cave; and which, strange to say, lives exclusively on grain. Humboldt was the first who brought intelligence of this cave to Europe, in which, according to the belief of the aborigines, the spirits of the departed dwell; and which, therefore, no one enters, from religious dread. When Humboldt and Bonpland had, with great perseverance, completed their drawings, and had packed

up the collected specimens, they commenced their retreat on the 22nd of September, over dangerous precipices, and through thick forests and ferns: on the way, they for the first time became acquainted with the monkeys inhabiting this region, who utter a melancholy and discordant cry. Humboldt remarked here, that the monkeys seem the more depressed and melancholy the nearer they resemble men; that with the increase of their apparent reasoning faculties, their impetuous sprightliness diminishes in equal proportions.

The travellers next arrived at the town of Cariaco, where the unhealthy local influences had produced a malignant fever; they therefore embarked speedily, to reach Cumana, a distance of twelve miles by sea; and during the voyage, Humboldt continued his studies of the tribes of the Indians he had hitherto met, and of their language. His second residence at Cumana was more eventful than the former one; for he narrowly escaped falling a victim to an attempt at assassination. The attack was made on the two naturalists by a Zambo—*i.e.*, a cross between a negro and an Indian, as they were, according to their wont, walking along the shores of the gulf, on the evening of the 27th of October, 1799. The Zambo did not hit Humboldt, who avoided the blow, with his heavy stick, but a second blow, which hit Bonpland on the temples, felled him to the ground. With Humboldt's assistance, he was, however, enabled to rise; and the two unarmed friends were preparing to meet the attack, which the Zambo continued with a large knife, when, fortunately, some Biscayan merchants came to their assistance, and the fugitive adversary was caught, and lodged in prison. Bonpland was the whole night in a feverish state, and his condition at first excited great anxiety, but the unfavourable symptoms gradually disappeared, and he recovered after several days.

But this accident did not deter Humboldt from the observation of the eclipse of the sun, which took place at this time, and his attention was soon directed to

new, highly important phenomena, whose advent had been predicted by the Indians at the volcanic Cuchivano ravine, from the superstitiously observed unusual natural appearances.

From the 10th October, his attention was directed to a reddish mist, which covered the sky for some minutes every evening; other remarkable air phenomena soon followed; the mist grew denser, the hot night air became un-odorous, the sea breezes failed to come, the sky was coloured like fire, and the earth's surface was bursting everywhere. Thus the 4th November arrived, and was an important day for Humboldt, because he was, for the first time, witness of an earthquake, and participator in its dangers. How new and how overpowering it was for him, and how soon he felt familiar with its dangers, is shown in these, his own words: "From our childhood upwards we represent to ourselves the water as a mutable, the earth as an immovable solid mass,—it is the result of daily experience. The appearance of a shock of earthquake, an agitation of the earth, of which we believed that it rested firmly on its old foundations, destroy the long-cherished illusion in a moment. It is a kind of awaking, but an unpleasant one; we feel that we have been deceived by the apparent repose of nature; henceforward we listen attentively to the least noise, and, for the first time, we distrust the soil on which we have so long confidently wandered. But, when the shocks are repeated,—when they recur frequently for several days, then the uncertainty has vanished, we take new confidence, and become as familiar with the waving earth as the steersman with the wave-tossed ship." Not long since, when Humboldt was dwelling on these events of fifty years ago, he said that an earthquake has something universal, which one cannot evade; even the lizards living quietly at the bottom of the rivers, ran howling into the woods, and everywhere one stands on dangerous ground.

The inhabitants of Cumana were in great terror

when in the evening, at nine o'clock, a third shock was felt, accompanied by subterranean noises. Many persons hastened to Humboldt and Bonpland, to ask them if their instruments did not foretel fresh earthquakes. This afternoon must have been a grand one for Humboldt, if we think of the picture which he, with his talent for such natural scenes, has drawn of it. At an incalculable height it thunders uninterruptedly overhead, while the earth shakes; the people rush from their houses into the streets, uttering cries of terror. And this scene of the destructive powers of the labouring earth is followed by a splendid sunset on an indigo-blue sky, traversed by gold-fringed clouds and prismatic rays, while deep in the earth a threatening noise accompanies a new, violent shock.

Some nights afterwards Humboldt again had an opportunity of observing a considerable fall of shooting stars, similar to that on his journey from Europe. At that time already he presumed a regular recurrence of this phenomena, and we shall, in a later portion of this biography, show how, in consequence of Humboldt's communications, these meteoric appearances have been scientifically explained.

On the 18th November, Humboldt and his companion left Cumana on a coasting trip to Guayra, and with the intention of staying at Caracas until the termination of the rainy season. Their plan was then to explore the extensive plains of the Orinocco stream, to navigate the immense river south of the cataracts, up the Rio Negro to the boundaries of Brazil, and then to return to Cumana over Guyana, whose capital is called Angostura, or narrow pass. This was a journey of more than five hundred (German) miles, of which two-thirds would require to be made in boats. The country was, moreover, an unknown district, and no intercourse existed with the missions located there. Courage and perseverance, aroused by zeal for science, were their guides. Humboldt did not let the alarming descriptions of the colonists, who painted the threatening dangers and obstacles they would

meet from soil, animals, and savages, deter him from his plans.

Humboldt and Bonpland sailed quickly down the serpentine Manzanares, with its shores studded with cocoa-nut trees. They had embarked at Cumana on a small merchant vessel, and taken leave of that town as of a new-beloved home. Was it not the first land which Humboldt had trod, in a region on which his heart had been fixed from his earliest youth, and he says himself that the impression an Indian landscape produces is so great and powerful that after a residence of some months one seems to have lived there for years. This impression can in no way be compared to what a European northlander might perhaps feel after a short sojourn on the gulf of Naples, for the oaks and pines which grow on the Swedish mountains have a family resemblance to those of Italy and Greece—but here, between the tropics, where Humboldt wandered, nature appears quite new and magical, and in the open field, as well as in the close-grown wood, every reminiscence of Europe fades away.

The potency of these impressions makes up for their duration: this explains why Humboldt yet, at his advanced age, feels a kind of restless desire to see those spots, especially Cumana, again. There the sun does not only shed light on a landscape, as with us,—it gives a colouring to the different objects; it enfolds them, without destroying their transparency, with a light which makes the colouring more harmonious, and spreads a repose over nature whose reflex still exists in a high degree in Humboldt's mind. This explains Humboldt's grief at quitting Cumana, whose shores he had first trodden five months before as a newly discovered land, where he had, at first, approached every bush, every damp or shady spot, with a certain mistrust, and where he had now become so intimately acquainted with plants, rock, soil, and inhabitants. He did not conceal this parting pain, when in the evening he could no longer reco-

gnise the coast but by the occasional lights in the fishing huts.

Humboldt with his companion anchored in the harbour of New Barcelona, at the mouth of the crocodile-filled river, Rio Reveri, and he measured the altitude of the sea from a hill, in order to decide the geographical longitude of the place. The next day he set sail again, although his fellow travellers had determined to wend their way to Caracas over land, through a wild, marshy region, from fear of the unsteadiness of their little vessel on a stormy sea. Bonpland also went this way, to make a collection of new plants. Humboldt, however, with a pilot, boldly prosecuted the sea journey to Guayra, whose harbour is filled with sharks, and whose appearance is more that of a desert rocky island than of a continent. Humboldt only tarried here a few hours, especially as the yellow fever was raging, and reached Caracas on the evening of the 21st November, while the land travellers only arrived four days later, after having suffered much inconvenience and many hardships.

CHAPTER IV.

CARACAS—ASCENSION OF THE SILLA MOUNTAIN—EXCURSIONS INTO
THE PLAINS TO SAN FERNANDO DE APURE—THE COW TREE—SAIL
ON THE ORINOCO—RIO NEGRO—RETURN ON THE CASSIQUARE INTO
THE ORINOCO—ANGOSTURA.

HUMBOLDT remained two months in Caracas. This seat of the supreme court, under whose jurisdiction more than 30,000 people lived, seemed to him, at first, a solemn dismal town. He trod the soil as if he were haunted by a foreboding of the terrible visitation which awaited this town in 1812, when an earthquake buried 12,000 inhabitants under the ruins of their dwellings. The waning fogs descended from the mountains into the valleys, and, at first sight, Humboldt thought himself transported to the larch and pine covered Harz mountains. But he calls the vale of Caracas a paradise, a valley of eternal spring, where the temperature never, not even in the night, falls below 18 degrees; and where Pisang, citron, coffee-bushes, apple-trees, and figs, grow beside each other in rich profusion. The first melancholy impression of Caracas soon faded from his mind, when he perceived the beauty of the valleys, and especially when he experienced the agreeable impression which the inhabitants made upon his soul; for, however fertile nature may be, man is always its most important and most interesting feature. Here Humboldt found, instead of a noisy, varied life, a refreshing domestic life, which engenders frankness, cheerfulness, and refined manners. The inhabitants might, how

ever, be divided into classes ; the firm conservators of the past, and the reform-loving renovators, inviting foreign influence to remodel the present, and build the future.

The most important scientific undertaking which Humboldt now had, was to ascend the Silla, a high mountain, whose summit none of the dwellers around had ever reached, wherefore, it was difficult to find guides. With the assistance of the governor, Humboldt obtained some negroes as guides. The excursion, which was joined, for the sake of the novelty, by about sixteen persons beside Humboldt and Bonpland, started on the 22nd January, 1800, on a day when, on account of the low clouds, they could calculate on pure clear air. The road, which the guides expected to make in about six hours, was a difficult one, but the trouble was richly rewarded by the surprising beauties of the scenery. It required as much courage as perseverance ; several of the company lost courage on the way, and a young capucin friar, who was also professor of mathematics, and had shown much boldness at first, remained behind, on a plantation, half-way up, and watched the ascent of Humboldt and his more persevering companions, through a telescope. They found, at a height of 6,000 feet, Saranas (pasture grounds) covered with brambles and little yellow lily-like flowers ; they hoped in vain to find a wild rose, not one of whose varied species Humboldt has found in South America, except the Montezuma rose, which grows on the mountains of Mexico in the 19th degree of latitude.

Arrived at the summit, Humboldt and his friend had a similar treat to that enjoyed seven months before on the peak of Teneriffe. The material pleasure of a surprisingly beautiful prospect into a new country, was joined to a mental activity of scientific research, and a better comprehension of the relation of the single part to the whole. From the summit of the mountain he gazed on a landscape where nature alone ruled without being influenced by men, or

their civilization. But he was already accustomed to find regions as large, perhaps, as France, being only an extended beautiful desert, and to see a world which belonged only to plants and animals, and where a human voice has never sounded in joy or in sorrow. Thus Humboldt stood at the brink of a precipice 8000 feet deep, which the evening mist was gradually veiling, and could not tear himself away from this spot, till prudence urged him to return. When their scientific investigations were completed, he descended with his companions, and reached a ravine at 10 o'clock that evening, where a dangerous path awaited them, more dangerous because the guides had secretly gone away to find a sleeping place in the rocks, and Humboldt and Bonpland were therefore obliged to carry their instruments themselves, oppressed as they were with thirst and fatigue. We have detailed this excursion to show the courageous perseverance of Humboldt's character, which does not swerve before dangers and difficulties, but is alone urged on by the love of science.

It was, therefore, only the peculiarities of an interesting region, and the anxiety to become acquainted with its form and natural products, which made him unmindful of the unusual distance, when he left Caracas in order to explore the large plains (llanos) of the Orinocco and Amazon streams, so rarely trodden by men. He did not select the shortest route thither, for he wished not to lose the impressions of the beautiful vales of Apogna; besides that his scientific zeal urged him to find the level of the more remarkable portions of the coast mountains by means of the barometer, and to navigate the Rio Apure, which flows through the immense plains to its junction with the Orinocco. The same motive led him to the mountains of Los Taquos, to the warm springs of Mariara, to the fertile shores of the sea of Valencia, and through the large prairies of Calabozo, in the eastern part of the province Varinas, to San Fernando de Apure on the similarly-named river, Rio Apure.

Humboldt's investigating mind found rich food for its inquiries on this excursion. What a common traveller would only have enjoyed with the senses, or overlooked as a solitary object, or admired *en passant* as a strange phenomenon, or collected it as a curiosity, that was for Humboldt the connected part of a great whole which his mental eye comprehended. The uncommon things he found here he was frequently able to explain from his European experiences; what in Europe had been unintelligible, he explained here in the tropical world from the similarity of common laws and causes. His geological studies found a rich material in the neighbourhood of the village of Antimano; his perseverance under privations was again proved by his having to spend the night in a sugar plantation on a skin on the ground, among noisy negroes, and yet he climbed the mountains again at sunrise. When he descended from the high mountain ridge westward into the valley of the little village San Pedro, and heard the Europeans, placed here for the superintendence of the cultivation of tobacco, utter complaints and imprecations on the accursed land in which they were forced to live, when he was quite inspired by the wild beauty of the place, its mild climate and fertile soil, he must have felt vividly that nature only reveals her charms to him who understands and appreciates her.

In the month of February, 1800, his path lay through the valleys of the Tuy, where he directed his attention to the sugar plantations of Manterola, to the gold vein, to the corn-fields (on which a twentyfold harvest is considered a moderate return), to the celebrated zamang-trees, with their gigantic branches, to the colonies in Hacienda de Cura, where he entered for several days into the mode of life of a wealthy inhabitant, taking two baths, three meals, and three sleeps in twenty-four hours; finally, to the cotton plantations near Cura, and to farming in general. Then he arrived at the sea of Valencia, where, among the productions of a foreign nature, he was reminded

of the sea-shores of the Canton of Vaud ; for although nature in every zone, and under any circumstances, always bears a peculiar character, the mind willingly and fondly feels the similarity in the effect, without entering into analytical comparisons which are purely matter of science. Humboldt instituted interesting investigations into the causes of the decrease of water in this sea, which he found explained by the destruction of the forests, the cultivation of the soil in the plains, and the cultivation of indigo, as well as by the dryness of the atmosphere and the exhalations of the soil, and which induced him to institute further inquiries into the quantity of exhalation, which in turn became of importance to farming interests.

In the neighbourhood of Mariara, Humboldt found the tall Volador, whose winged fruit he and Bonpland collected and sent to Europe, and which grew in the gardens of Berlin, Paris, and Malmaison ; he declares that the numerous specimens of the Volador growing in European conservatories all spring from the single tree of this kind which was found by him in the neighbourhood of Mariara.

The heat of the days obliged Humboldt to continue his excursion to New Valencia, commenced on the 21st February, by night only. After six days' journey on a beautiful road, endangered by jaguars, but rich in varied natural beauties, he reached this town, visited the neighbouring warm springs of Trincherá, and arrived at Porto Cabello, which he quitted again on the 1st March, and directed his steps to the first station on this journey, San Fernando de Apure, whence he went over Calabozo and the immense solitary plains of Caracas.

On his return from Porto-Cabello to the beautiful valleys of Araguay, Humboldt came to the farm of Barbula, where he saw the celebrated cow-tree, of whose remarkable qualities, as report had spread them, he had hitherto doubted. He found it to be a tree which, on incision, exudes a perfectly mild-tasting milk, which has an aromatic flavour, and is a

source of healthy nourishment to the negroes. We enumerate this tree, especially, in a biography of Humboldt, as he himself states that few of the numerous and remarkable objects he met with on his journey have made such a vivid impression on his mind, as this cow-tree, which resembles the star-tree in form. This impression is partly induced by our early associations; for everything relating to milk and corn excites a natural interest in man, which is not only based on a thirst for a knowledge of natural facts, but which arises from the idea and feeling that without milk, from the mother's breast upwards, and without flour, we could not have existed. To this may be ascribed the religious veneration for corn, and for milk-giving animals, with ancient and modern nations. As milk is generally considered only as an animal product, the idea of a milk-producing tree is the more startling, as one has always doubted its existence; and therefore Humboldt, whose soul was so susceptible to new general impressions, without therefore prejudicing his scientific analyzing powers, gazed with astonishment at the wonderful tree. He thus gives way to his impressions in its description: "Here are no splendid shadowy trees, no majestic streams, and no eternally snow-covered mountains, which mightily move us. A few drops of a vegetable sap remind us of the almightiness and fruitfulness of nature. On the sterile declivity of a rock there grows a tree whose leaves are dry and tough, whose thick, woody roots can hardly penetrate the stony soil; for several months of the year no refreshing rain moistens its foliage, the branches seem dead and shrivelled; but make an incision in the stem, and a sweet, nourishing milk flows from it. At sunrise, this vegetable spring is the richest; then the negroes and the natives come from all sides, provided with large vessels to collect the milk, which turns yellow, and thickens on the surface. Some empty their vessels, at once, under the tree, others take the milk to their children. One seems to see the establishment of a shepherd who distributes the milk of his herds."

Science, which searches after the cause of every phenomenon in its effects, certainly deprives it of its marvellous character, and perhaps also of a part of its charm, in the eyes of those who are only able to gaze, and not to examine. But in Humboldt, the first emotion of nature, and the penetrating, inquiring mind for the natural reasons and laws of every appearance, are united in a higher, harmonious character, and the first impression on his feelings is always succeeded by the clear insight of the naturalist.

Humboldt relinquished his formerly cherished intention of visiting the Eastern branches of the Cordilleras in New Granada, as he would no longer delay his journey to the Orinocco, for his chief purpose now was to explore the junction of that river with the Rio Negro and the Amazon. On the 6th March he left the valleys of Araguay, with his companion, to continue his wanderings in the steppes, whose peculiarity, in contradistinction to the African steppes, he has especially treated. He crossed the prairies, plains overgrown with gigantic grasses, in which many a jaguar lies concealed, and which no shade refreshes, as the palm tree growing here is parched, and almost leafless. Humboldt inquired here into the breeding of horses and horned cattle, of which large herds live on these desert spots, and whose export is an important trade for the seaports on the coast. Over Calabozo their way lay through the deserts of the llanos of Caracas, where Humboldt found a new subject for inquiry in the gymnotes,—the electric fish. The waters near Calabozo, which flow into the Orinocco, and the marshes, were filled with these electric eels, and Humboldt saw, at the same time, the peculiar manner of catching them by means of horses, some of whom were drowned. The eels attached themselves to the horse's belly, and stunned them by their electric shocks; so that a real fight on horseback had to be waged with these animals until they were exhausted, and had to collect new galvanic power, and those stunned horses, which had escaped drowning, had been restored.

On the 27th March, 1800, the travellers arrived in San Fernando de Apure, after having two days before, without any track, crossed the large plain of the Caracas steppes, where the eye sees no object even five inches high within the horizon, and where he unexpectedly found a small capucin establishment in the desert. The three days they spent at San Fernando were employed in cultivating a better acquaintance with this district, which is subject to frequent inundations, and therefore reminds one of Lower Egypt, and where the Orinocco and Amazon find their natural level by a peculiar aquatic system. The rainy season with its numerous storms, in whose train the inundations generally follow, was commencing, and although the atmospheric phenomena of this season were an interesting, absorbing subject of his inquiries, still the rain induced him to continue his journey on the river Apure itself, on a piroge or broad boat, as the Indians build it, and which was manned by a steersman and four Indians. Provided with provisions for a month, and with objects for barter with the Indians on the Orinocco, they embarked and sailed down the stream, which abounds in fishes, sea-cows, and tortoises, and on whose shores the birds often served them for food. Everything noteworthy which occurred to the observing Humboldt on this river journey he drew at once, and it was his wont always to note down whatever interested him on the spot, for what is written in sight of the objects one would describe bears the impress of truth, and this feature lends a charm even to the most insignificant things which Humboldt wrote. The greater and the more imposing nature reveals itself, the more simply true are his delineations, which is the most preferable feature of plans made on the spot.

It was Humboldt's intention to sail down the Apure and up the Orinocco, into which the former river flows, and then to continue his journey on the Rio Negro. The brother-in-law of the commander of Varinas, Don Nicolas Latto, accompanied him on his

journey, and his amiability and cheerfulness often made the travellers forget the hardships and danger of their position. And, indeed, for less courageous persons it would have been no agreeable journey, for tigers, tapirs, and pecaris, did not in the least avoid the passing boat; almost as in the original paradisaical state, panthers, hoccas (a black feathered animal), and crocodiles from 18 to 22 feet long, gazed at the travellers, and when they rode at night the tigers went into the woods for prey, the wild animals howled in the forests, the boat drove against trees which floated on the water, while sometimes the cry of the parrot was intermingled with more savage cries, and was merrily responded to by the little monkeys on the shore.

In this manner the ship's company rowed from the Apure into the wide expanse of the Orinocco, which, with its high, foamy waves, stretched before them like a sea. The beauty of this wild nature pleased Humboldt as much as the tradition of the Indians about this water. Humboldt had nearly sunk once with the ship during a high wind, in consequence of the steersman's carelessness, and the water already covered his papers and specimens; a mere accident saved him and his companions, and when they at nightfall bivouacked on a sterile island in the stream, eating their evening meal in the moonlight, seated on tortoise-shells, the form of danger again arose before Humboldt's soul. He had only been on the Orinocco three days, and a ship's journey of three months, connected with far greater dangers, was yet before him. Thinking of this hour, he writes:—"There are moments in life in which, without absolutely despairing, the future seems very uncertain; one is more apt then to indulge in solemn reflection when having escaped a danger, one has need of a great emotion."

And while he thought thus and lay on skins on the ground, the jaguars swam through the stream, and played round his resting-place.

The Orinocco here, although 194 miles from its

mouth, had already a breadth of four leagues, and when they were near the shores of Pararuma the steersman would not venture farther. Humboldt hired another ship from a missionary, and set sail on the morning of the 10th April. The reader may form an idea of the hardships to be endured, by a description of the Indian vessel which the travellers had now taken possession of. On the back part a kind of arbour had been made for four persons, but it was so low, on account of the wind, that they had to lie stretched on hard tree trunks, and to stretch the feet out beyond the roof, or to sit in a bent attitude to gain sufficient room. In front sat, two and two, the naked Indians, who accompanied the monotonous sound of the oars by equally monotonous and melancholy songs. Besides this, the ship was filled with the collected monkeys and birds, who, with the instruments, formed the centre around which the hammocks were slung, while around all this, fires had to be kept up to drive away the jaguars. The instruments had to share the couch of the travellers at night, and whenever they were required the travellers had to land and unpack. Add to this the oppressive heat, and the troublesome mosquitos, which the one tried to send away by a suspended handkerchief, and the other by smoke. Humboldt says, when he speaks of these days, that these hardships could only be made endurable by inborn cheerfulness, mutual good-will, and a lively sense for the splendours of nature.

A remarkable rising of the stream gave him the opportunity of investigating the levels of water. During the journey up the river the ship passed the mouth of several tributaries of the Orinocco, especially the Meta, which resembles the Danube in length, breadth, and bulk; it passed the town of Apures, where Humboldt visited the missions and the waterfalls, which made a deep and lasting impression on him. In his description of these regions he vividly reflects their physical nature; he describes a nature which perfectly harmonises with the requirements of his feelings,

for the character of a landscape stands always in a mysterious relation to the soul of man. Such an impression the great waterfalls of Atures and Maypures also made on him ; he tarried among them five days, and then continued the journey to San Fernando de Atabapo, on the Cassiquiare, which unites the Orinocco and the Rio Negro in a peculiar manner. A new plan had to be made in the little town of Atabapo, in consequence of the advice of the prior of the mission stationed there. At his recommendation it was determined first to sail up the Atabapo, and then to follow the rivers Temi and Tuanimi. Humboldt here found himself suddenly in quite a new country, and on the shores of a river whose name he had never heard pronounced. He sailed straight into deserts where human beings scarcely left a trace of their existence. Indians who went out man-hunting lived in these deserts, and annoyed the missions situated near them. In this wild tract of America, Humboldt seemed to himself to be transported to those times when the earth was being gradually peopled, and to be witness of the first formation of human societies. The men he saw here had no other worship than that of the Spirit of Nature.

On the 6th May, Humboldt reached the Rio Negro, little river, famed for its various windings, after having been imprisoned for thirty-six days in the narrow fragile boat, where the getting up of one of the travellers from his seat would have been the cause of the overturn of the boat, if he had not given notice of his intention first to the rowers, that they might prevent the danger of overturning and drowning by balancing the other side of the boat. Although he had suffered much from insect bites, Humboldt had not been affected by the unhealthy climate, the dampness and surge ; therefore, when he had arrived on the isthmus between the Orinocco and the Amazon, he looked back with pleasure on the dangers passed, feeling convinced that he had fulfilled his most important purpose, which was, astronomically to determine the course of

that arm of the Orinocco which flows into the Rio Negro, and thereby to verify its existence, which for half a century had been sometimes believed and sometimes doubted. The existing charts were so faulty, that Humboldt's presence in these regions became of the greatest scientific importance, in the accurate determination of localities, and the correction of errors in the charts.

What Humboldt felt at the sight of this equatorial region will be most faithfully given in his own words. "In these interior districts of America," he says, "one almost accustoms oneself to consider man as something unimportant in the order of nature. The earth is covered with plants, whose free growth is checked by no obstacle. An immeasurable layer of black earth testifies the uninterrupted action of organic forces. Crocodiles and boas are the lords of the streams; jaguars, pekaris, tapirs, and monkeys, fearlessly cross the woods in which they are settled as on an ancient inheritance. Such a scene of animated nature, in which man is as nothing, has something strange and depressing in it. It is difficult to accustom oneself to it on the ocean and in the sandy deserts of Africa, although there, where nothing exists which can remind us of our fields, woods, and rivers, the immense desert we traverse seems less strange. But here, in a fertile, evergreen, beautiful country, we seek in vain for traces of human existence, and seem to be transported into a totally different world. And these impressions are stronger the longer they endure."

Humboldt visited the Catholic missions which are dispersed over the country here, among them Maroa and the more southern Fort St. Carlos, the most southern Spanish military boundary guard, scarcely two degrees distant from the equator. Here Humboldt stood on neutral ground, from which he could have as quickly proceeded down the Amazon to the Brazilian coast, as he could attain the north coast of Carabas on the river Cassiquiare, down the Orinocco. He chose the latter as more suitable to his plans.

The ride on the river Cassiquiare was much incommoded by mosquitoes, whose numbers increased with the distance from the black water (Rio Negro); he only found miserable Christian settlements on the eastern and almost uninhabited western shore, and the natives he met consumed the indigenous ants with the same pleasure as the New Zealanders their spiders. But a still more dreadful immorality he found in the custom prevalent here of eating human beings; a few years before Humboldt's arrival, a native *alkalde* had eaten one of his wives, after he had first fattened her with the greatest care. The reproaches of the Europeans to these Indians on their abominable customs were entirely fruitless, and Humboldt says that it is with them, just as with us in civilized Europe, if a Brahmin from the Ganges were to reproach us for eating animal food. Indeed, Humboldt travelled here among Indian tribes who considered each other as totally different beings, and who believed themselves as justified in killing each other as the wild jaguars in the woods. Although Humboldt was already accustomed to the sight of a luxurious tropical nature, he nevertheless felt surprised as he sailed further on this broad, impetuous, incommodious river Cassiquiare, and made various vain attempts to land, because the shores were impenetrably overgrown with foliage and creeping plants. Though the travellers' hands were thickly swollen with insect bites, they had to take an axe to make the way to a resting-place, because the rain did not permit them to remain in the boat at night; and while on the sea one often complains of want of drinking water, here the travellers suffered from a want of firewood in the midst of the forests, as the sappy wood would not take fire.

Humboldt calls the passage of the Cassiquiare the most oppressive of the whole American journey.

At last, after many privations, which the scientific zeal to behold the celebrated bifurcation of the Orinocco easily overcame, Humboldt and his companions again reached the bed of the Orinocco stream on the

21st May, 1800, three miles below the station Esmeralda. This bifurcation of the mighty waters he calls magnificent, and his travelling hardships were no more thought of in front of the granite rocks, 7800 feet high, where the two rivers separate. Such an imposing sight rewarded their perseverance, and especially enriched science; for here Humboldt collected the great materials and instructive explanations of a comparative hydrography, and the history of his discoveries in general enriched the history of geography with many important contributions. Here in this district he explained the physical relations of the soil, collected the similar phenomena of the old, and this centre American soil, and gave science an important insight into the analogy of natural formations, and the ruling laws of the globe in reference to its veins of water.

In the missionary station of Esmeralda, Humboldt became acquainted with the notorious poison called "curare," which is prepared here, and used in war, on the chase, and, strangely enough, as an internal remedy for abdominal complaints, and which, with the Ticunas poison of the Amazon stream, and the Upas poison of Java, is the most deadly of known poisons. The Indians prepare this poison from the fruit of the similarly-named plant, which they collect with certain solemn festivities, as the vine harvest with us, and from which one man, called the "poison-man," prepares the murderous matter. This matter was a new interesting subject for experiments for Humboldt, from which it resulted that the poison directly mixed with the blood by means of a wound, kills, while, taken inwardly, it is an excellent tonic. The preparer of the poison incautiously and unknowingly rubbed a little of the stuff in Humboldt's presence with his wounded finger, and fell stunned to the ground; but his life was saved by rubbing him with muriate of soda. Humboldt had also nearly fallen a victim to this poison, as it had run into his linen out of a badly-secured bottle, and he fortunately perceived some of

the poison in a stocking as he was putting it on, which, as his toes were sorely bitten by insects, would infallibly have killed him.

When Bonpland had prepared some arrows with this poison for the purpose of shooting birds, and had been with Humboldt witness of the very remarkable Curare feast, which is accompanied by dancing and drunkenness, the two naturalists continued their journey. Humboldt had proved the connexion of the Orinocco with the Amazon, and, with this scientific trophy, gained partly by his journey to the cataracts, partly by inquiries made of the soldiers of San Carlos who had made an expedition in search of the sources of the Orinocco, he bid adieu to a district which had been unknown before his time, and which had only been a land of fables for former writers of travels. The discovery of the sources of this great river was left to a future naturalist, the traveller Schomburgk, who visited these districts in the interest of the Geographical Society of London.

From the missionary establishment of Esmeralda, Humboldt and Bonpland travelled further on the 23rd May, 1800, sailing down the Orinocco, and, without being properly ill, they were nevertheless, in consequence of the hardships they had gone through, of bad food and insect torments, in a thoroughly exhausted and weak condition. They found little to cheer them along the river, as they met no living beings, only interminable plains, and sometimes high mountains; they experienced a feeling of abandonment the more deeply as inscriptions on the rocks and rude sculptures in granite showed traces of a former existence of civilized beings, and were evident monuments of the decayed civilization of a nation formerly existing here, but now annihilated. Although exhausted and depressed, they neglected not a single interesting natural specimen, and thus they reached the passage over the great waterfalls of Maypura, which occupied them two days. On the 31st May, they landed on the eastern shore of the stream near Puerto de la Expedicion, to

see the cave of Ataruipi, the probable cemetery of an entirely obsolete nation, and where in a short time they counted 600 well preserved human skeletons, regularly ranged in baskets of palm leaf branches. Humboldt examined the graves and their peculiarities, and took several skeletons and skulls away, which the corpse-fearing natives transported with great repugnance. In a quiet starlight night he left this spot of a passed-away nation—of an extinct Indian tribe.

Unfortunately these skeletons did not reach Europe, for, as we shall show in a subsequent portion of the volume, the first consignment of collections, about a third of the entire American trophies, was lost by shipwreck.

For the second time Humboldt and his friend ventured to navigate the waterfalls of Atures in his light boat, the varied scenery which the long succession of waterfalls afforded made the trip as beautiful as dangerous. Their falling in with the Otomaks living at Uruana showed Humboldt a new phase of human existence, as it is remarkable that men should find a pleasure in eating lime, or dirty clay soil, while they live in the most beautiful and fertile districts, and that they produce intoxication and madness by means of the *niopo* powder, prepared from the husks of a mimosa plant, when they ought not to be visited by the degeneracy of civilized snuff-taking human beings.

After a passage of seventy-five days, during which the travellers had sailed 375 geographic miles on the five great rivers—Apure, Orinocco, Atabapo, Rio Negro and Cassiquiare—in a small boat under a burning sun, exposed to constant dangers and insect torments, they arrived at Angostura, the chief town of the province of Guayana, in the middle of June, 1800. The hardships they had undergone were soon obliterated from their memory when they were welcomed by a kind reception from the governor of the province, but their over-taxed physical strength was now too much ex-

hausted to resist a nervous fever attack. For more than a month Humboldt was detained at Angostura by his illness, and Bonpland's condition was so serious that he only retained strength sufficient to treat his own malady, and gradually to bring about his recovery.

But now new plans roused Humboldt and his friend to fresh travelling expeditions.

CHAPTER V.

JOURNEY TO HAVANNAH—CHANGE OF PLANS IN CONSEQUENCE OF A FALSE NEWSPAPER REPORT CONCERNING BAUDIN'S EXPEDITION—CARTHAGENA—SAIL ON THE MAGDALEN STREAM—LABORIOUS JOURNEY TO QUITO—CHIMBORAZO—THE RIVER AMAZON—HUMBOLDT'S CURRENT (PERUVIAN COAST CURRENT)—MEXICO—RETURN TO EUROPE.

THE travellers had determined in Angostura to return to Cumana or New Barcelona, and from one of these ports to go by sea to the island of Cuba and thence to Mexico, there to devote a year to a physical scientific investigation of New Spain. After that it was intended to visit the scarcely-known Philippine islands, and to return to Europe by way of Basora and Aleppo. The way from Angostura to the northern coast, through the immense steppes, was a most arduous one, and the botanical and zoological specimens, which they could not venture to leave behind, detained them so long that thirteen days were spent in packing them up. When at last they were ready to start, it took them a considerable time to pass through the Karaïbes, whom they met with at Cari, a missionary establishment in the plain, and who particularly excited Humboldt's interest. They arrived safely at New Barcelona on the 23rd July, though exhausted by the sand winds of the plain. They lived with the same good-natured man who had so hospitably received them seven months before, when they first came to Barcelona. A typhus fever threat-

ened Humboldt here as it had done in Angostura, but Bonpland regained full strength and activity during the four weeks Humboldt was ill.

Their first care now was to forward the treasures they had collected to Europe, so that they might, unencumbered, prosecute their search for more trophies. A young missionary who, seven months before, had at his first acquaintance with Humboldt shown a lively interest in his expedition, volunteered to accompany the travellers to Cuba, and there to set sail with the rich collection, and a boy, who was confided to his care for education in Spain.

Humboldt accepted the welcome proposal, as he thought he could not send his collections and a portion of his manuscripts home by a safer opportunity. How painfully it must have moved him on his subsequent return to Europe to hear that the whole consignment of his collections, as well as the young missionary and the boy, had been entirely lost at sea.

Humboldt waited in vain for a packet-boat, such as usually sail between Corunna, Havannah, and Mexico. As none had arrived for three months, it was feared that English cruisers must have seized them, and Humboldt and his companions wished to reach Cumana as quickly as possible. They therefore embarked on an open vessel laden with cocoa, whose owner thought that as he served the smuggling trade with Trinidad he need not fear the English vessels. But it was soon brought up by a privateer. Humboldt and his companions had to go on board, and while they were yet treating in the interest of their own captain, an English war-sloop came up and liberated the boat. The captain of the sloop received Humboldt in a very friendly manner, and he felt agreeably excited, after a long sojourn among savages, to see and speak with Europeans again. In Cumana, also, Humboldt and Bonpland were the more affectionately welcomed by their friends, as the report had been spread here that the bold travellers had been killed some months before, on the Orinocco. But

the severe English blockade detained them two months and a half in Cumana, during which time Humboldt was occupied with botanical, astronomical, and meteorological inquiries, and with geological investigation of the peninsula of Araya. At last, on the 16th of November, 1800, he left Cumana for New Barcelona, to start from there with an American vessel; and he says himself that he could not gaze for the last time on the tops of the cocoa palms on the shores of the Manzanares, faintly illuminated by the moon, without deep emotion.

The ship raised anchor on the 24th of November, and, spite of the late season, reached Havannah on the 19th of December. Humboldt shortened the long, unpleasant voyage by observations of the sea and sky. Their collections had been sent to Europe, and Humboldt and Bonpland did not imagine that they would never see a portion of them again. Their stay in Cuba lasted several months, during which Humboldt was principally occupied with examining the extent, soil, climate, culture, and population of this queen of the Antilles, as well as with the condition of the slaves, historically and morally considered, and with agriculture.

On the point of going to Vera Cruz to complete their above named gigantic expedition over Mexico, Acapulco, the Philippine Islands, and thence home over Bombay, Bassora, Aleppo, and Constantinople, Humboldt perceived from newspaper accounts that Captain Baudin, whom he had promised by letter before his departure from Corunna that he would join him from any place he might be if he heard that his delayed expedition was realised, had really left France for Buenos Ayres, with the intention of rounding the Cape, and then coasting along Chili and Peru. As Humboldt had declared his purpose of joining the captain publicly, before the Museum in Paris, the desire to search for him became urgent, especially as he anticipated more important and more extensive results from his journey if he could prosecute his inquiries in conjunction with the French *savans* who

he knew would have followed Baudin. Although many intelligent persons in Cuba opposed this plan, and referred particularly to the uncertainty and deception of newspaper accounts, they had no influence over Humboldt, who, impressed with the idea of his promise, and inspired by the hope of exploring the physically so remarkable and rich Spanish possessions, for fifty years inaccessible to every stranger, remained faithful to his purpose. He had, from the first, made it the chief aim of his voyage to complete the most important hitherto neglected investigations of the earth and its nature, and to bring about a really scientific natural philosophy of our globe.

With this truly inquiring mind for science, he hired a bark on the quay of Batabano, with which he proposed to go to Porto Cabello, or Carthagena, with a favourable wind. With this hope he went with Bonpland to Batabano on the 6th March, 1801, arrived on the 8th March, at what was at that time only a miserable marshy village, and steered thence south along the island of Cuba, but at the same time examined several points of the coast and the neighbouring islands, and determined astronomically their geographic position. He had calculated that this voyage would only occupy about a fortnight, but it lasted nearly four weeks, as contrary winds detained them, and the ship, driven too far west by the storm, had to land at the Rio Sinu, on the continent of South America. Here no botanist had ever examined the vegetable kingdom, and Humboldt and Bonpland found an acceptable task until the 27th March, when the ship started again. Its owner, however, did not accede to Humboldt's request to land in Columbia, on account of the wild region in which they were. The savage state had been shown on their first landing; for when Humboldt and Bonpland rowed to the river shore with the intention of botanising in the moonlight, they would have fallen into an ambushade of naked men, armed and laden with chains, being probably criminals broken loose, if they had not retreated in time and with caution to the ship.

The next morning brought Humboldt to the port of Carthagena, where for six days he was employed in astronomically determining localities, and where he witnessed the popular Easter festivities, which were accompanied by strange exhibitions. At the same time his plans met with their first check here, for he heard, to his infinite regret, that the season was much too far advanced now to undertake a voyage on the South Sea from Panama to Guayaquil, and he was therefore compelled to relinquish his intention of exploring the isthmus of Panama.

Near Carthagena lies an Indian village, called Turbaco, whose fertile woody environs greatly enchaind Humboldt's attention, more particularly the remarkable wind or air volcanos, called volcanitoes,* lying in the midst of palm-groves. A hitherto unknown world of plants, also, was spread before him and Bonpland, who indeed occupied himself principally with botany.

Humboldt endeavoured, by other studies, to compensate for the journey, postponed on account of the lateness of the season ; and the treasures of science he had collected on the Orinocco stream encouraged him to undertake a similar trip on the Magdalen stream, a river flowing through the beautiful and majestic valleys of New Granada, and entering the sea by several mouths not far from Carthagena. They took a boat, and went up the stream into the country as far as Honda, where Bonpland explored the rich botanical treasures of the shore, while Humboldt drew a chart of the river district, in spite of the torments of insects, climate, and dangerous localities. At Honda they landed, to proceed to the capital, St. fe de Bogota, on mules, almost the only travelling convenience on the continent of South America. They had

* These volcanitoes consist of fifteen to twenty blunted cones, nineteen to twenty-five feet high, situated on a large free spot of about 1000 square feet in the centre of the wood. They have an opening filled with water, and emit air bubbles, accompanied by a loud noise.

been travelling on the river and in the valleys for thirty-five days, and remained in Bogota till September, occupying themselves with botanical and geographical researches, and admiring and studying the magnificent natural formations of the rocks and waterfalls of Tequendama, the mines, and the picturesque remains of former earthquakes. On a dangerous path over the inconvenient pass of the Andes of Quindiu, whose highest point is 11,500 English feet above the sea, they proceeded to Popayan; in the rain, quite wet through, and barefoot on the soft soil, sleeping under the free heaven at night, and awaking exhausted in the morning, they passed through the Canca valley, visited the snow-covered volcanoes, Purace and Sotara, through Pasto, a little town situated at the foot of a burning volcano, crossed the equator, and arrived at Quito on the 6th January, 1802, after a journey of four months.

Here Humboldt soon recovered from the effects of the dangers and privations of the journey, in the highly agreeable and equable climate of this country, and he employed his stay of nearly nine months, in geological and botanical studies; his sense for natural beauty and cheerful landscapes finding abundant food for gratification in the enchanting situation of the place, opposite long ranges of gigantic snowy mountains. He ascended the crater of the volcano Pichincha, though not without trouble, and several unsuccessful trials. On it, he made experiments on the electric, magnetic, and hydraulic properties of air, measured altitudes, and, indeed, studied the chain of the Andes, in a geognostic point of view, so fundamentally that his works became the most important materials for the foundation and prosecution of the study of modern geognosy. He wandered to the majestic snowy tops of the Antisana, and of the Cotopaxi, the highest volcano of the Andes, whose thunders are often heard at a distance of 200 English miles, at Honda, on the river Magdalen; he ascended Tunguragua with Bonpland and a young enthusiast

for science, named Montufor,* who accompanied him on this journey, and on the 23rd June, 1802, he even ascended the Chimborazo, where he climbed to a height of 3036 toises, an elevation to which no man before Humboldt had ascended. Nature seems, indeed, most unwillingly to allow mortals to penetrate into her mysterious depths, or ascend her mysterious altitudes; above she threatens them with the fatal consequences of a rarified unbreathable atmosphere, below with suffocation in a hot condensation of air. On the point of Chimborazo which Humboldt reached, the blood flowed from his eyes, his lips, and his gums, breathing became difficult, and the thermometer stood still.†

Arrived at Quito, Humboldt received a letter, which communicated to him that Captain Baudin had sailed to New Zealand, and turned eastward, round the Cape of Good Hope. The plan of a junction with Baudin, and the, in that case, practicable journey to Mexico and the Philippine Islands, which he had cherished for thirteen months, was now suddenly frustrated. But he was already accustomed, from former times, to such disappointments of long cherished projects, that he did not lose courage, but, depending on his own resources, resolved not to lose sight of his purpose. He determined to sail from Quito to the Amazon stream, and to arrive in Lima, in time to enable him to observe the passage of the planet Mercury across the sun's disk.

Under indescribable difficulties, Humboldt and his faithful companion Bonpland reached Loxa, on a path leading through the snowfields of Assuay and Cuenca, which made the transport of the scientific instruments, and the extensive collection, more troublesome. In the woods here, they examined the various species of the China-tree, then wandered eastward over the

* Don Carlos Montufor fell a victim to political partisanship in 1811.

† On the 16th December, 1833, Boussingault, the only one who has since ascended this mountain, reached, not the summit, but a point 400 feet higher than Humboldt could venture on.

Ganges, surveyed the splendid remains of the old Peruvian viaduct of Inka, which leads from Cuzco to Assuay, and then arrived at the Amazon. Here, in the province Jaen de Bracamoros, Humboldt corrected and revised the chart of the Amazon made by the French astronomer, Condomine, by sketching a most accurate chart of this unknown portion of the great stream, partly from his own observations on an excursion to the cataracts of Retama, partly from careful inquiries; Bonpland, in the mean time, continuing his botanical investigations.

Crossing the high chain of the Andes for the fifth time, Humboldt now returned to Peru, ascertained the position of the magnetic equator, visited the productive highly situated silver mines of Hualguayok, where the silver is found 2000 feet above the level of the sea, the hot springs of Caxamarca, and the ruins of the ancient town of Manfiche, with its old pyramids, in one of which, in the 18th century, more than four millions French livres of pure gold were accidentally found. Returning to Truxillo, over the western Cordilleras of the Andes, Humboldt, at his descent, enjoyed the sight of the Pacific Ocean, for the first time; and, at the same time, looked down into the long narrow valley which is celebrated because it never rains or thunders there. Crossing the sterile shores of the Pacific Ocean towards the south of Truxillo, the travellers arrived at Lima, the chief town of Peru, where they remained for some months, and instituted important climatic and astronomic inquiries here and in the neighbouring port of Callao, and arrived in time to observe the last period of Mercury's passage, before entering the sun's disk; for which purpose, even heaven was propitious, as, in Lima, on account of the thick fogs, the sun is often not seen for three weeks. We must especially mention Humboldt's investigation of the remarkably cold Peruvian coast current, for, subsequently, science has given to it the name of Humboldt current, in appreciation of the merits of the great natural philosopher.

In the January of 1803, Humboldt and Bonpland sailed for Guayaquil, in a royal corvette. But on the 6th January, a noise and roaring filled the air, and they heard that it was the sound of the volcano Cotopaxi, which was now in labour, and which Humboldt had ascended the year before. The wish to observe the volcanic eruptions and ravages of this mountain as nearly as possible, made Humboldt soon ready to set out to visit the volcano once again. But on the way thither, he and Bonpland were obliged quickly to return, as the news reached them that the frigate *Atalante*, in which they wished to sail, was obliged to start.

After a journey of thirty days, they arrived in Acapulco, a western port of New Spain, whose scenery is as picturesque as its climate is hot and unhealthy. At first, when his plans had necessarily to be changed, Humboldt intended only to remain a few months in Mexico, and then to return to Europe, because his instruments seemed to him to have suffered, and his endeavours to remedy their imperfections were in vain. But the country, and the inhabitants of Mexico delighted him so, that he did not like to terminate his journey as speedily as he had originally proposed. The scientific and genial charms of a country so rich and diversified in its scenery, were too strong to be overcome. But this journey needed also the greatest precaution, as the yellow fever, which is indigenous there, and infallibly attacks and kills all those who descend into Mexico from the highlands, from July to October, induced Humboldt to remain at Acapulco till the end of the winter, and then to commence his journey into the interior. During that period, he was actively employed in experimenting on the atmospheric phenomena, and with the arrangement of his manuscripts and specimens.

But in the middle of winter they started, and descended first into the glowing hot vales of Paraguay, where the temperature, in the shade, was at 32 degrees Reaumur. He found a milder and fresher

climate on the plains of Chilpantzingo and Tasco, lying about 6000 or 7000 toises* above the level of the sea, and whose rich silver mines he visited; thence their journey lay over Cuernaraca, and through the fog exhalations of Guchilaque to the beautiful town of Mexico.

As the longitude of this place had, down to that time, been incorrect on the common maps, Humboldt rectified it by accurate astronomic calculations. But the antiquities especially occupied him here, and the statistics of the population. Having borrowed instruments for the purpose of the astronomic measurements above-named, from the excellent mining academy of Mexico, whose director was also a pupil of Werner, in Freiburg, he extended his inquiries to the celebrated mines of Moran and Real del Monte, and their environs, whence he returned in July, 1803, to proceed to the northern districts of the country. He surveyed the artificial breach in the mountain Sinog, near Desague de Huehuctoca, which had cost six millions of piasters, and was intended to conduct the waters from the valley of Mexico; he then repaired, by way of Salamanca, to the celebrated mining town Guanaxuato, where he devoted two months to geognostic studies, especially to the detection of ores, and then travelled through the valley of San Tago, southwards to Valladolid, the capital of the ancient kingdom of Mechocan. The rainy season did not deter the bold, and in the interest of science, indefatigable man from descending with his friend to the coasts of the Pacific, into the plains of the Jorullo, where, in the plain Malpais, in 1759, a considerable volcano had sprung up in one night, whose 2000 craters were still smoking, and were examined at considerable risk by Bonpland and Humboldt, who descended 250 feet into the burning crater of the central volcanic cone, on fragile lava pieces. To these investigations, science owes a new important increase of its facts and revelations on the history of the

* One toise is equal to six feet.

formation of the world in general, and of this remarkable phenomenon in particular.

Humboldt and Bonpland returned once more to Mexico, over the high levels of Toluca, in order to arrange their botanic and geologic collections, to regulate and calculate the barometric and trigonometric measurements, and to prepare the sketches for a geognostic atlas.

In January, 1804, Humboldt set out on a more extensive excursion, to examine the eastern side of the Cordilleras, of Mexico; the altitudes of the volcanoes Popocatepetl and Tztacchiuatl, were trigonometrically measured, as well as the pyramid of Cholula, which was once built of bricks, by the Tulteks, and which was ascended on account of the beautiful view it affords on the snow-covered tops of the mountains, and the smiling valleys of Tlascala. After these investigations, Humboldt proceeded to Xalapa, over Perote, and had to pass through almost impenetrable forests of oak and fir trees, through which a road was subsequently made according to his plans, in consequence of his three times repeated barometric measurements of the locality. Cofre, a mountain, situated near Perote, and 162 toises higher than the peak of Teneriffe, was also ascended and measured, and also the peak of Orizava, past which his way led him. After a stay in these regions, which had proved most fertile in scientific studies and their results, Humboldt and Bonpland returned to Vera Cruz, on the bay of Mexico, fortunately escaped the yellow fever, raging in this sterile and waterless plain, and set sail for Havanna, on a Spanish frigate, to take possession of the collections left there in the year 1800. They tarried here two months, and then embarked on a ship which was to transport them to the United States of North America. After a violent storm, which lasted seven days, in the Bahama channel, they reached Philadelphia in thirty-two days, visited Washington from thence, and after the lapse of about two months, spent in the free states of North America, and where

Humboldt especially devoted himself to the study of the political relations and condition of the population, they returned to their native Europe, from which they had been absent more than five years.

In August, 1804, Humboldt and his friend Bonpland landed in the harbour of Bordeaux.

The journey of which we have here given an outline could not fail to create a great sensation in Europe. It was not only unexampled as the execution of the most magnificent undertaking of a German citizen ; it was not only perfectly disinterested, and a sacrifice made solely to the interests of science ; people admired not alone the courageous determination, the persevering force, the industry, the intellectual capacities, and inquiring talent of Humboldt's personality, but the gradually revealed unbounded results of this journey to the equinoctial regions of the new continent became of such universal importance in all branches of human science and commerce, in its influence on a new system of science even, nay, also on the political improvements of the country traversed, that Humboldt was hailed in Europe as the *second Columbus*. A hitherto entirely unknown or misunderstood region of the earth was placed in splendid landscapes before the senses of intellectual Europe, and not only was the exterior surface and its phenomena described, but science was made acquainted with the inner formation of the land, with its riches and its wants, with the secrets of its heights and its depths, with the circumstances of its animate and inanimate life, and from the chain of comparative facts was developed the discovery and comprehension of the great eternal world, and life-laws of the earth and its inhabitants.

And Humboldt was the best intellectual organ of these new revelations of science, for universality and power of combination were united in him ; he had the talent for harmonious, calm, and reflective observation of nature, and a happily developed sense for truth and beauty of form ; in him a creative and regulating

spirit, a deep humane mind, and reason, and a heart animated by the purest love for science and life were combined, and what he felt he was able to express truthfully and gracefully.

But he was specially favoured by Providence from his cradle upwards. Unlike thousands, perhaps the majority, of learned men, he had not to struggle against poverty and want; he had not to rescue his budding spirit from the despair and privations consequent on the want of the necessities of life; he had not to rouse himself from the flagging of the wearied body; he came into the world as a privileged being; he was cradled among the highest social circles; his youthful education led him through the widely opened house and domains of science, through favour and wealth.

But it is his high merit that with these worldly favourable circumstances he did not give way to the charms and the indulgences of his aristocratic position, that he did not fall into the egotism of high birth, nor the pride of idleness, but that he, on the contrary, surrounded by the charms of a favoured position in life, still followed the inborn impulses of his spirit, that he made himself the self-sacrificing servant of science. It forms his morally high position as a man that he voluntarily and unostentatiously rejected the aristocratic comfort of a nobleman, that he joyfully sacrificed his property, and bore the greatest dangers and privations in the service of intellect, in his endeavours after knowledge, and a scientific extension of a comprehension of the world.

CHAPTER VI.

RETURN AND NEW ACTIVITY AT HOME—ASCENSION OF MOUNT VESUVIUS IN 1805—BERLIN—VIEWS OF NATURE—THE GREAT LITERARY WORK ON HIS TRAVELS IN AMERICA—DECLINING OF A PRUSSIAN OFFICIAL POST—NEW PLANS—DESTRUCTION OF CARACCAS—BONPLAND'S FATE—HUMBOLDT'S STUDIES IN PARIS.

WHEN Alexander von Humboldt started on his great journey, his brother William lived in Paris with his family, and we have already stated that Alexander's letters from Spain had induced his brother to visit this country. But during Alexander's absence much had been changed in his brother's position, for William had been appointed Prussian chamberlain and privy-councillor of legation, and resident minister at the Papal court in 1802, and therefore resided at Rome. His wife, whose health had become very delicate, had gone to Weimar on a visit, in 1804, and went thence to Paris, as she still hoped for the return of her brother-in-law Alexander, in spite of unfavourable reports. On the 28th March in this year, a letter from Havanna had been received in Rome by William von Humboldt, in which Alexander announced his speedy return to Europe. But very soon after, a report had been spread that he had fallen a victim to the yellow fever shortly before his debarkation, and this report, though unconfirmed, spread grief and great excitement in his brother's family in Rome.

But what must have been the delight and surprise of the suffering Madame von Humboldt when, during

her stay in Paris in August 1804, the sudden news arrived that the great traveller, already mourned as lost with but faint doubts of the truth of the report, had arrived in the Garonne with all his American treasures. The despatch which brought the intelligence from Bordeaux to the National Institute of Paris was immediately forwarded by the secretary to Madame von Humboldt, and as great as her surprise, was Alexander's astonishment when he, hastening from Bordeaux to Paris, found his sister-in-law there, while he had anticipated not being able to see his brother and his family in Rome till the commencement of the following year. As he had the intention of settling in Paris, for no town presented so many scientific and personal advantages as it, and he also only thought at first of arranging his collections, of completing his manuscripts to make them the foundation of a comprehensive literary travelling history, it was most agreeable for him that his brother's wife, who was expecting her confinement in the autumn of 1804, was remaining in Paris till the commencement of the following year. Then she proposed returning to her husband, who was in the meantime spending a happy solitude in Albano, commencing and completing the long planned translation of the *Agamemnon* of *Æschylus*, and inviting in September his friend Wolff, the editor of *Homer*, to share his charming solitude at Albano, and enjoy with him the beauties of nature in intellectual intercourse.

In Paris, Alexander von Humboldt really lived only in the recollection of his great journey, as he worked daily with Bonpland, the faithful companion of his joys and dangers, at the regulation of his collection, and he maintained a lively intercourse with the most eminent scholars of the capital on the success of his journey. Many of these eminent men, such as Cuvier, Gay-Lussac, Arago, Vauquelin, Oltmann, Laplace, and others, were actively engaged in the literary arrangement of his stupendous materials. Nearly a year elapsed before Humboldt found

time or was able to tear himself from the preparatory labours for his work. In the spring of 1805, the longing for his elder brother led him to Rome, where he paid a lengthened visit to his brother's family. William von Humboldt lived in Albano in a brilliant circle of wealth, and of intimacy with the most distinguished men at that time living in Rome, and Alexander's arrival increased the brilliancy and charm of the intellectual and genial circle. The joy of meeting between the two brothers so tenderly united in love, and so akin in their spiritual life from their earliest youth, was rich in exalted feelings and happy impressions. While William had expected the return of his brother with anxiety and longing, Alexander brought back into his brother's house that centre of intellectual life in classic antiquity, beside the dangers overcome, beside love and affectionate excitement, the grandest views of a newly discovered world in the freshest tints of their impressions. How vivid must have been the exchange of their thoughts and emotions, how must not Alexander, as the discoverer of a new scientific and real world, have been the radiating centre round which all who belonged to the intellectual circle of Humboldt's house eagerly crowded.

With what astonishment must they have listened to his communications, for which nature had endowed him with a glowing eloquence, when he gave them the images of new scenes, new natural and human life from the rich treasure of his new experiences. William von Humboldt especially was most inspired, as he was, more than all others, able justly to comprehend his brother's new views, to follow him in the new regions of science, and to raise his own European self-consciousness, his classical studies, and his political views to a higher, more universal standard through Alexander's descriptions.

But Alexander had brought special treasures for his intellectually congenial brother from the new world. We have before hinted that William von

Humboldt pursued philological studies in addition to the study of Greek and Roman antiquity; these studies acquired new impetus in consequence of Alexander's return, for in distant regions he had not neglected to cull spiritual food for his brother, and had, not without great exertions, discovered and collected a considerable number of hitherto unknown grammars of American dialects in the missions and cloisters he had visited on his dangerous wanderings. These he brought home to his delighted brother, and only made the condition, before presenting them totally into the hands of William, that he would occasionally, during the following few years, lend these philological treasures to Professor Vater, of Königsberg, and to Friedrich Schlegel.

If we consider the persons who at this period formed Humboldt's circle, or who were brought into temporary relation to it, we must confess that Alexander found a rich source of intellectual and genial pleasures in Rome. Beside several princes and statesmen, we need only name Madame de Staël and A. W. Schlegel, who lived so near to Humboldt's that they formed but one house; besides Schinkel, Count Moltke, Tiedge, and Frau von Recke, the brothers Riepenhausen, Rumohr, Rehfuess, Sismondi, &c.

Alexander von Humboldt was called away from Albano in the summer of 1805 by his studies; Mount Vesuvius betokened an approaching great activity, and an eruption was probable. Humboldt joined his two friends, Leopold von Buch and Gay-Lussac, who had come to Italy to observe the mountain, and was at Mount Vesuvius on the 12th August, when a remarkable eruption took place. With the experience and views of the volcanic phenomena of the earth which Humboldt had gained on his journey, this ascent of Vesuvius in company with eminent natural philosophers became an instructive source of scientific knowledge, and while he instituted a course of magnetic experiments with

Gay-Lussac, he added new experiences and combinations to the observations of the magnetic needle which he had made in Paris in 1798, and examined especially the magnetic qualities of certain species of rock, especially of serpentinite, a black-green, snake-like, spotted talc.

When Alexander had combined the happy moments of this fraternal meeting with new scientific inquiries, he returned from Italy, and tarried in Berlin during 1806 and 1807, where he had unfortunately to witness the political degradation of his native land, but at the same time achieved great scientific victories. It was especially the magnet which occupied him, and by the numerous experiments which he made on one and the same magnet during his travels, at that time, as well as at subsequent periods, he not only induced other naturalists to similar measurements, but furnished the elements which Biot worked on in calculating the magnetic equator. Humboldt had continued his magnetic observations with Gay-Lussac, with whom he was in the most intimate, friendly, and scientific intercourse, in Paris, and he had discovered that the great mountain chains, and even the active volcanoes, exercise no perceptible force on the magnetic power, but that it deviates gradually with its distance from the equator.

But in a literary point of view Humboldt was also active, for he must have completed, or, at all events, commenced here in Berlin, the manuscript of one of the few works he published in German, as it appeared during the next year, 1808, when he was in Paris. At this period Humboldt had returned to Paris to his faithful travelling companion, Bonpland, in order to continue the gigantic work of travel they had commenced with the assistance of celebrated scholars.

The "Views of Nature," written in flowing German, under the impressions of vivid recollections, and celebrated for their thoughtful conception and rich revelations of terrestrial life in which he describes

the tropical countries, steppes, and mountain scenery he has traversed, in a masterly manner, and gives a physiognomy of plants, a description of the formation and effects of Indian volcanos, &c., was literally a gift of love to his brother William, and was publicly dedicated to him.

William von Humboldt, who remained in Rome as ambassador, to the end of 1808, responded to this literary present of fraternal love by a poem, which he sent from Albano to Alexander in Paris, and which the latter did not publish until after his brother's death. This poem bears evident tokens of the emotions of longing and of anxiety which William must have felt for his brother, wandering about in a foreign world-quarter, and gives us an insight into the happiness which their meeting in 1805 must have caused them.

It also reflects the great impression which these "Views of Nature," these grand descriptions of a foreign world, must have made on William von Humboldt, especially as he had already enjoyed the verbal description of the same subject. In this poem, William, after reading the book dedicated to him, transposes himself into the same wild and grand nature, in the midst of that undeveloped higher life, but describes also the self-consciousness and the hopes of this new world. He compares its poverty and its grandeur with the old world—compares the Pelasgians and Greeks to the American Indians, and reveals the great laws of historical existence which govern the two worlds, as Alexander had discovered their natural laws.

When Humboldt had returned to Paris in 1807, he devoted himself principally to literary activity, by directing the completion and gradual publication of the great results of his travels. But the fruits of his journey were so considerable, so varied, and entering into so many spheres of science, his studies and collections were so exciting for further research and comparison, that he had to unite with other scholars, and allow them to complete in a more

especial manner the various branches of science. The most eminent men of the age considered it an honour to be fellow-labourers in this gigantic work; they emulated each other in the sterling value of the contents, and the most accurate adaptation of the material afforded them. Artists and artizans strove to make the artistic contributions, the atlas, the landscapes, the typographic arrangements, as perfect and brilliant as possible. Although the great work required several years, and its completion extends to the latest period, and even into the future, we deem this a fitting occasion to give a sketch of this great literary undertaking.

The whole work, which is written in the French language, is subdivided into a series of pamphlets, which belong to the various special spheres of science. For the astronomic observations and barometric altitude measurements, Oltmann was employed, under Humboldt's superintendence and assistance; in chemistry and meteorology, the celebrated Arago and Gay-Lussac willingly assisted him with their knowledge; Cuvier and Latreille devoted their energies to the zoological portion; Vauquelin and Klaproth to the mineralogical part; and the Berlin professor, Kunth, was fellow-labourer in the department of botany. This assistance of celebrated scholars in special natural scientific branches, was inevitably required, if the work should have any chance of completion during a long human life. The materials which Humboldt entrusted to each fellow-labourer resembled a mine, from which every workman produced new treasures and pure gold for science. It was to be expected that the parts which gradually appeared would soon find translators and compilers, and thus it happened that the various single branches were translated into German and other languages by clever men, and were frequently enriched with new experiences and comparative descriptions.

As the original was written in a foreign tongue,—as it appeared only at long intervals, and was ex-

pressed in the severest scientific form, the great work was a treasurable and important one only for the really scientific, while the German nation in general had little insight into it, and only the German popularly written "Views of Nature" could be found on the library shelves of the educated classes. There were, indeed, some who endeavoured to popularize Humboldt's great journey, by transcribing interesting extracts from it, but yet the German nation, as a whole, gained no insight into the entire great importance of the results of Humboldt's acquirements for science and life. To innumerable persons Humboldt is yet a fabulously miraculous individual, over whom the report of mysterious adventures throws a supernatural halo.

The great work bears the title, "Voyage aux Régions équinoxiales du Nouveau Continent, par A. de Humboldt et A. Bonpland." Two editions of it appeared, one large and one octavo edition; the former consisting of three volumes folio, and twelve volumes in quarto, besides an "Atlas Géographique et Physique," and a collection of picturesque drawings, the latter intended to form twenty-three volumes. Four quarto volumes contain the real account of the journey—"Relation Historique," the fourth volume appearing after a long delay. The reader may judge of the immense comprehensiveness of this colossal work, by the length of time its completion required, in spite of the important assistance given to it; for although the first volume appeared nearly forty years since, its completion dates down to the present time.

In order to gain a comprehensive idea of the whole, according to its contents, we will enumerate the parts and their respective subjects, without regard to the period of their publication in single volumes or pamphlets.

The "Vues des Cordillères et Monuments des Peuples indigènes de l'Amérique," give us, in two folio volumes, with sixty partly black, partly coloured copperplates,

splendidly finished, a picture of the rich nature of the tropical countries, the mountain formation of the Andes, as well as clear descriptions of the manners, origin, migrations, languages, morals, laws, and worship of the inhabitants; and also inquiries into, and illustrations of, the ancient buildings and monuments of the old Mexican and Peruvian nations.

The "*Essai Politique sur le Royaume de la Nouvelle Espagne*," in two volumes, with the atlas belonging thereto, and also the "*Essai Politique sur l'Isle de Cuba*," in two volumes, give a clear insight into the state of Mexico and Cuba, in respect of politics and statistics, and still afford a rich source of knowledge, in spite of the great changes which have since taken place there.

The Zoology, the observations on animals which Humboldt made during his journey, are contained in a work of two volumes, entitled, "*Recueil d'Observations de Zoologie et d'Anatomie comparées, faites dans un voyage aux Tropiques*," at which Cuvier and Latreille actively assisted, and which comprehends an accurate description and interesting comparison of different species of animals, and many new facts concerning the earth as the dwelling place of animals. In Botany Humboldt's fellow-traveller was particularly active, and while Bonpland depicted the new specimens of a hitherto unknown vegetable world, having brought home more than six thousand species of new plants from America, Humboldt extended his view over the laws of vegetable life, and their relation to the earth itself. The great work, "*Essai sur la Géographie des Plantes*," which was in some sort a conclusion to Humboldt's treatise, "*Ideas on the Physiognomy of Plants*," in the above-mentioned "*Views of Nature*," and which was more extensively treated in the work, "*Prolegomena de distributione Geographicâ Plantarum secundum coeli temperiem et altitudinem montium*," proves in a genial manner, rich in experience, how important the influence of geography is on botany ; it

shows how vegetable geography stands in closest relation to the life of plants and the study of climate, —how the number, the form, and the local distribution of plants, must differ according to the universal laws of the different zones, from the pole to the equator, from the depth of the mines and the bottom of the sea to the mountain-tops of eternal snow, according to the geographical latitude of the locality, and the constitution of the surrounding landscapes. This work may truly be said to have opened a new sphere in the science of botany: for the first time the relation of the medium temperature of a place to the atmospheric pressure, and the humidity and electric tension of the atmosphere, is explained, and that by his own measurements and investigations. To this work is added that beautiful picture of a vegetable geography of the tropics, the so-called "*Tableau des Plantes équinoxiales*," from the level of the sea to a height of five thousand metres, in which Humboldt gives a clever, æsthetic, but, at the same time, strictly scientific and pleasing picture of the vegetable world.*

* Vegetable geography is a new branch of botany really founded by Humboldt. After he had instituted the most comprehensive investigations into the laws of the distribution of plants, and shown their intimate connexion with the conditions of height and climate, and the chief points of a numerical calculation of the local distribution of plants over the earth, he formed a basis for this branch of natural science, whose development by himself and others has attained such a degree of completion, that it has not been without considerable influence on the civilization of nations. His writings on this subject, and the excellent illustrations accompanying them, contain an accurate distinction between the characteristics of the various forms of plants in the warmer regions. His description of the mountain Flora, rising terrace-like upwards, as well as of the social and the solitary plants, excited such a lively interest among all educated men, far beyond the bounds of merely scientific circles, that we must give a short sketch of his system. What would be a landscape without plants? They alone refresh and vivify, and thus they are the companions of man. But to describe their geography, one must be susceptible to their existence. Humboldt was so to a high degree; and this we may recognise, not alone from his classification of the varieties of plants, from his doctrine of the distribution of plants from the equator to the poles, and from the level of the sea to the boundaries of eternal snow, but more especially from his "*Physiognomy of Plants*," which reveals the intimate conformity of his comprehensive

The special explanation of the new discoveries in descriptive botany Humboldt left to his fellow-labourers, as he had at the same time to devote his energies to other fields of natural science. Thus Bonpland alone wrote two works, namely, "*Plantes Equi-*

mind with the mysterious life of plants, and their relation to the earth. The surface of plants which is spread over the world has had its HISTORY, its gradual distribution over the sterile earth, and its great epochs. If a volcano from the bottom of the sea suddenly divides the surging tide and forces a slaggy rock to the light of day, or if the coral insects gradually raise their edifice, after thousand generations, to the level of the sea, everywhere on the naked rock, as soon as it comes in contact with the air, the organic powers are ready to vivify the dead stone. The first vegetation on the stone begins with a coloured spot, gradually darkening and appearing to be streaked with velvet, an organic structure rises layerwise over the stone, and, as the human race must pass through certain grades of moral culture, so is the gradual distribution of plants dependant on certain physical laws. Where high forest trees now raise their verdant tops, tender lichen once crept over the soilless rock—mosses, grasses, weeds, and bushes, fill up the unmeasured periods of gradual development between then and now. What the lichens and mosses effect in the north, the pontulace, the gomphrenes, and other low shore plants serve to effect in the tropics. This development and advancing renovation varies according to the diversity of the climate. Periodically nature becomes dormant in the cold zones, for fluidity is the condition of life; only such plants can develop themselves here as are capable of supporting a temporary interruption of their vital functions, and a periodical deprivation of heat; but the nearer to the tropics the more varied are their nature, their graceful forms and colours. But in this increase from the poles to the equator each different climate has its peculiar beauties, excepting of course the sterility of certain large tracts of land in consequence of former floods or volcanic revolutions. The tropics, for example, have variety and size of form, the north enjoys the prospect of meadows and of the periodic awaking of nature—every zone has its peculiar character, its natural physiognomy. The descriptions of such landscapes need not only afford a pure delight to the senses, but Humboldt showed how the knowledge of the natural character of different regions of the world is intimately allied with the history of the human race and its civilization, how the tendency of the national character, how a cheerful or a depressed humour chiefly depends on climatic influences. The wonderful number of different species of plants, of which 56,000 have already been discovered on the earth, Humboldt divided into only a few well-defined classes, which form the basis of all. He did not classify them, as the systematical botanist does, according to the minute parts of the buds and fruits, but according to the entire impression which individualises a district, and by this means he established sixteen classes of plants which especially determine the physiognomy of nature. More will probably be found

noixiales au Mexique, dans l'Isle de Cuba, dans les provinces de Caracas, Cumana, &c.," in which he gave a methodical description of the plants in the Latin and French languages, with remarks on their medicinal virtues and domestic application. In another work, "*Monographie des Rhexia et des Malasthomes*" (plants which occur almost exclusively in South America, being principally trees and bushes, and of which all those which bear berries affording eatable fruit, which permanently colours the mouth black, whence their name), he described more than 150 specimens of new species of these plants.

Humboldt, besides this, united with the botanist

when the at present entirely unknown vegetation of South-eastern Asia, of central Africa and New Holland, of South America, from the Amazon to the province of Chiquitos, will have been revealed. In our temperate zones a certain monotony obtains; the physiognomy of our landscapes may be characterized by very few forms, which shrink more and more as they approach the pole, and become more varied and gigantic towards the equator. Like our animals, of which a lizard is there repeated as a crocodile, a cat as a tiger, lion or jaguar, the monocotyledons of our marshes grow in the south as majestic bamboos, as palms and uranias. The shrivelled needle leaves of our pines there unfold themselves as the immense leathery leaves of the bread tree, our German foliaceous moss grows to a tree-like form, our ferns are trees there like our alders and lindens. Humboldt characterizes the botanical forms in the following manner:—1. The *palm tree* as the highest and noblest of all plantile forms, the stem of which is often 180 feet high. 2. The *Pisang* or *Banana* form, which compensates for our northern grain in the torrid zone. 3. The *malvaceous* form, to which the monkey's bread tree belongs, which is probably the oldest and largest monument on our planet. 4. The *Mimosa* form. 5. Heaths. 6. Cacti. 7. Orchidaceous plants. 8. Casuari form. 9. Pines. 10. Pothos plants. 11. Lianas and vines. 12. Aloe plants. 13. Grasses, which, in the tropics often exceed in height our alders and oaks. 14. Ferns, often thirty-five feet high in hot climates. 15. Lilyplants, and 16. Willow form. The tropics afford the natural requirements for the production of all the representatives of the botanical world by its districts ascending from the level of the sea to the highest mountains. The inhabitant of the torrid zone may see all the plantile forms of earth without leaving his home, for he is surrounded not only by palm trees and pisang bushes, but by plants which, belonging, in a less stately and dwarfish form to the northern world, flourish there in imposing height and luxurious fertility. This short sketch will suffice to prove how interesting and attractive Humboldt's system is for every intelligent mind.

Kunth, and delivered to him the material for the compilation of several works, which have appeared under the titles, "*Famille des Mimosacées et autres Plantes légumineuses*;" also "*Graminées Rares de l'Amérique Equinoxiale*;" and "*Nova Genera et Species Plantarum*;" and of which the latter, seven folio volumes, with 700 copper-plates, describes 4500 plants which Humboldt and Bonpland had collected in America. A projected "*Géographie des Plantes*," which was to be illustrated by twenty copper-plates, of which several were to give a picturesque delineation of the character of the vegetation, was not realized.

In physics, geology, and astronomy, Humboldt also produced a number of works, which he either composed himself, or gave the materials from his rich treasures. With Altmann's assistance, two volumes appeared, called "*Observations Astronomiques*," which contain the calculated observations made by Humboldt between the 12th degree of south and the 41st degree north latitude, on the passage of the sun and the stars through the meridian, on the obstruction of planets and moons, on eclipses, refraction of light in the torrid zone, and barometric measurements of the Andes of Mexico, Venezuela, Quito, and New Granada, and which were accompanied by a chart on which 700 geographical localities are determined. A comparative description of all geological formations of the old and new world was given by Humboldt in the work, "*Essai sur le gisement des Roches dans les deux Hémisphères*," which was translated into German by von Leonhardt. The "*Tableau Physiques des Régions Equinoxiales*" contains a universal physical survey of the chief phenomena of natural and geological existence; and a special treatise "*Sur les lignes Isothermes*" gives the doctrine of climate, especially the fundamental principles of the medium temperatures of the earth's surface, which study he continued in subsequent years. The before-mentioned "*Vue des Cordillères*" contains many descriptions of physical life, which properly belong here; and a work.

important in its plan, and intended to extend to ten volumes in four divisions, called "*Examen critique de l'Histoire de la Géographie du Nouveau Continent et des progrès de l'Astronomie nautique, aux XV et XVI siècles*," with an "*analyse raisonné*" treating of the materials employed, was not translated into German until the year 1836, by Ideler.

As regards the time when Humboldt published the different portions of his American travel library; his essay on Botanical Geography appeared in 1805, at the time when he was visiting his brother in Italy; his *Ideas on a Geography of Plants*, and a *Picture of the Natural Productions of the Tropics*, appeared in 1807, when he was living in Berlin, at the same time that his *Tableau of the Equinoctial Regions* was published; his work on Equinoctial Plants was commenced in 1808, and continued to the year 1816; while Bonpland's "*Monographie des Melasthones*" was commenced in 1809, and completed in 1816. In the year 1810 the first volume of the political essay on the kingdom of New Spain was published, at which Humboldt worked till 1815; in 1811 he published his *Views of the Cordilleras*; in 1815—1831 his "*Hauptreisewerk*," with the large atlas. His pamphlet on the isothermic lines (the lines which connect all places of the earth of equal mean temperature) was already published in 1817; in the same year appeared his "*Introduction to Botanical Geography*;" and at the same time he submitted to the Academy of Sciences in Paris his "*Chart of the Orinocco, and its junction with the Amazon by means of the rivers Cossiquiare and Rio Negro*." Professor Kunth superintended the publication of the "*Famille des Mimosa-ceous Plantes*" in 1819; of the "*Révision des Herbes*" in 1820; of the great "*Synopsis of Botany*" from 1822 to 1825; and Humboldt's political essay on Cuba was printed in 1826. Besides these works, Humboldt contributed to a number of journals, and wrote academical essays which cannot yet be enumerated collectively.

In 1844, when this gigantic work was still incomplete, the cost of a copy of the folio edition was 2700 dollars, about 405*l*. This is twice the cost of the celebrated French national work, "*Description de l'Egypte*," towards the preparation of which the government of that country advanced about one-eighth of a million of pounds sterling. A simple calculation will show how great must have been the expense of the whole work, when a single copy cost 2700 dollars (each dollar is worth 3*s*.); but it will become more evident when we state that the printing, paper, and copper-plates alone, have cost more than 226,000 dollars. And yet this important literary undertaking was not only realized and supported by the assistance of the purchasing public in all civilized states in Europe, but also by large voluntary pecuniary sacrifices on the part of Humboldt.

From 1808, Alexander von Humboldt lived principally in Paris. Towards the end of this year, William had been obliged to quit Rome, and his new political position in the Prussian state did not induce his return thither. He had been appointed councillor of state in the ministry of Home Affairs, and chief of the Section of Religion, and of Public Instruction; and in this very appropriate post he, by his representations, induced the king to decree the institution of an University in Berlin, in 1809. William von Humboldt was the soul of this undertaking, although the Lord Chancellor Beyme, the finance minister Von Altenstein, and the professors Wolff, Schleiermacher, Reil, and others, assisted him in its erection by word and deed. He induced the most eminent men to accept posts in the new institution; Gräfe of Ballenstadt, as surgeon; Reil, from Halle, as physiologist; Rudolphi, from Greifswalde, as comparative anatomist; Illiger, from Brunswick, as entomologist; Gauss, from Gottingen, as mathematician; Savigny, from Landshut, as lawyer; Fichte, from Erlangen, as philosopher; Niebuhr, from Halle, as teacher of political economy; Böckh, De Frette, and Marheinecke, from Heidelberg; and Alt-

mann, who had edited Alexander von Humboldt's astronomico-geographic collections, from Paris; and his dearest wish now, was to induce his brother Alexander to leave Paris, and honour the new university of Berlin with his name. But William von Humboldt was not to be present at the opening of the university founded by him; he was, on the 14th June, 1810, named extraordinary ambassador to the court to Vienna. His successor in the Department of Religion, Nicolovius, continued the work in Humboldt's spirit, and the chancellor wrote to Alexander von Humboldt, to Paris, to offer him the direction of the Section of Public Instruction. But the great task which Alexander von Humboldt had undertaken, and the labours of his literary work,—perhaps also, a dislike to official life,—induced him to decline the proffered honour.

William von Humboldt had gone to Vienna, where he was joined in the autumn of 1810 by his wife, who had till then remained in Rome. Here, again, his house became the centre of intellectual life; here he associated with Metternich and Gentz, with the counts Bernstorff and Stadion, with F. Schlegel, who was in the Austrian service, with Arnstein, Caroline Pichler, &c. But the following year brought, besides the youthful Theodor Körner, and the equally young Varnhagen von Ense, a welcome guest into the ambassador's palace in the person of his brother Alexander, who had left Paris after the publication of the first portions of his American literary trophies, to take leave of his family, as he had projected, and prepared for, another great journey,—one to central Asia and Thibet. The minister Romanzow had proposed to him to accompany a mission, across Kashghor, to Thibet, and Alexander at once assented, as he purposed visiting the celebrated mountains of India, and to study them in comparison with the Cordilleras of the new world.

This great plan, which was to be put in execution in the commencement of the year 1812, and which was already a favourite plan of Humboldt's, met with a sudden obstacle in the war between Russia and

France. Although his proposed journey was now frustrated, he did not lose sight of the once formed plan, and returned from Vienna to Paris, not alone to speed his American work, but also thoroughly to prepare himself for the perseveringly cherished plan of an expedition to Asia, with the hope of a future opportunity for its realization. With this view he occupied himself for several years with the study of the Persian language, so that he might, at his own expense, proceed to India by way of Teheran or Herat. He gained so accurate a knowledge of the structure of the Asiatic mountain-chains from literary sources that he was able to give critical judgments on the explorers who had travelled to the Himalaya mountains. The idea of this journey had an especial charm for him; the mountain plains of central Asia, where old traditions fix the first seat of the human race, and the fabulous giant mountains of India, the curious circumstances of the boundary of eternal snow; all these things inspired him with an especial predilection for Asiatic studies. The French government had, in the interests of science, proffered its assistance to the execution of this plan, and even the king of Prussia, when he was in Aix-la-Chapelle in October and November 1818, had granted the celebrated naturalist an annual sum of 12,000 thalers, and the expense of preparing the expedition for this journey to Asia, but "particular circumstances," which we cannot reveal here, prevented the execution of his favourite plan, and he at that time relinquished it himself.

Before Humboldt's departure from Paris in 1818, we must look back on the year 1812, to mention an event which grieved Humboldt deeply when he heard of it in Paris. This was the melancholy intelligence that the town of Caracas, in which he and Bonpland had spent two months, and where they had been so hospitably entertained, had been destroyed on the 26th March, 1812, by a terrific earthquake, in consequence of which nine to ten thousand inhabitants were

killed under the ruins of their houses, and by the falling of the church during a religious procession. Humboldt exclaims, mournfully—"Our friends are no more; the house which we have inhabited is a heap of dust; the town I have described no longer exists. The day was hot, the sky cloudless, the air calm: it was Maundy Thursday, and the population was mostly assembled in the churches; nothing seemed to announce the threatened misfortune. It was four o'clock in the afternoon. Suddenly the bells, which were silent on this day, tolled; it was God's hand, not a human power, which rung the grave-bell. A shock of ten to twelve seconds terrified the people, the earth swayed like a boiling fluid. The danger was thought to have passed away when suddenly the subterranean thunder was heard. The town was utterly destroyed. The nine to ten thousand dead, of whom four to five thousand were buried beneath the falling church, where a solemn procession was taking place, were the more fortunate, as they were suddenly and unexpectedly overtaken by death when partly engaged in devotion and prayer, when we compare them to the unfortunate beings who, injured and wounded, survived their friends for months, and then perished for want of attendance and nourishment. The following night was calm and bright, the moon shone, the quiet heavens formed a fearful contrast to the earth, covered with corpses and ruins. Mothers carried the dead bodies of their children in their arms, mourning families wandered through the town seeking a brother, husband, or friend, of whose fate they were ignorant."

The vividness of this description, in which Humboldt transports himself to the desolated town, and enumerates his friends and favourite spots there, evinces clearly what a deep, painful impression the news of the fate of Caracas had made upon him.*

* Never, probably, has pity shown itself more active, or more inventive, than in the efforts which were made to extend assistance to the unfortunates whose sighs resounded in the air. Tools to dig up

We have already mentioned that Alexander von Humboldt left Paris in the end of the year 1818. Another separation had taken place in this year—an eternal separation for this world—from his friend and faithful travelling companion, Bonpland. The interest which this companion of Humboldt may claim from us in the dangerous pilgrimages and river passages of America, will excite some interest also in his subsequent fate. Soon after his return from America with Humboldt, he gained the esteem and affection of all with whom he came in contact, by his amiable character. As the Empress Josephine was passionately fond of flowers, Napoleon appointed Bonpland superintendent of the gardens of Malmaison, where a splendid collection of exotic plants already existed. When the empire was overthrown, he no longer liked to remain in France, and he went to Buenos Ayres in 1818, as professor of natural history. For a long time nothing was heard of him, until at last the intelligence of his misfortunes reached Europe, and consequently Humboldt's ears. Bonpland had, it

or clear away the dead were totally wanting, and hands had to be made use of to dig out those buried under ruins. The wounded and the saved were encamped on the shores of the Guayra stream, where the branches of the trees were their only roof. All beds, linen, surgical instruments, medicines, all the primary objects of human necessities, were buried under the dust, and for the first few days there was a want of provisions. The water had become rare—the aqueducts were destroyed, the springs choked. The interment of the dead was demanded by religious as well as by sanitary considerations; but it was impossible to bury so many people, and commissaries were therefore appointed to superintend the burning of the corpses. Among the ruins of the houses piles were erected, and this melancholy business lasted several days. Among universal lamentations the surviving population fulfilled religious ceremonies, by which they hoped to assuage the wrath of Providence. Some instituted solemn processions, singing funeral songs. Others, seized with insanity, confessed aloud in the streets. Eighteen hours after this terrible event new shocks were felt, accompanied by subterranean thunder. The inhabitants of Caracas dispersed; but, as the neighbouring villages had suffered equally, they could only find shelter beyond the mountains, in the valleys and Savanas. Enormous pieces of rock fell from the Silla, which Humboldt had ascended; and it was maintained that the two points of the mountain had been lowered by from 50 to 60 toises.

seems, proceeded into the interior of Paraguay, in 1820, to visit an Indian colony which he had founded at St. Anna, on the eastern shores of the river Parana. Scarcely had he arrived at St. Anna than he was surrounded by soldiers, who carried him off a prisoner and took him to St. Martha, after having destroyed the plantations of the colony. This violent proceeding was a revenge of selfishness which took place by command of Dr. Francia, dictator of Paraguay. The latter had long cast a jealous eye on the tea plantations which Bonpland had established on several points of Brazil, for the tea plant is peculiar to Paraguay, and forms the staple export of the country. His first command was, therefore, to seize on his rival Bonpland, on his next visit to the boundaries of Paraguay. The prisoner was detained at St. Martha, where he was allowed liberty of person, and was permitted to practise as a doctor. When Alexander von Humboldt heard of this attack on his friend, he was untiring in his intercessions with all his high patrons and friends, but his efforts had no effect in Paraguay. In the year 1829, the news arrived that Bonpland had attained his liberty, and had returned to Buenos Ayres.

In September, 1818, Alexander von Humboldt proceeded to London, where his brother William had resided for a year as Prussian Ambassador, and been particularly active at his post, for the suppression of piracy in the northern states of Africa and the extinction of the slave trade. But Alexander von Humboldt's presence in London was not to be merely a fraternal visit, as it was seven years earlier in Vienna, especially as William's wife had remained in Berlin on account of illness. The Allied Powers had commissioned him to compose a political survey of the South American colonies. But in October the King of Prussia summoned him to Aix-la-Chapelle, where he arrived on the 13th of the month, and remained with the king till the 26th November. Here his new plan of a journey to Thibet and the Malayan Archipelago was spoken of, and the king granted

him annually 12,000 thalers during the period of the journey and the expenses of the preparations. Humboldt was at this time so ardently full of this plan that he proposed to commence his journey in a few months, and it is therefore strange that he could so quickly relinquish it. William von Humboldt also came to Aix-la-Chapelle, on the 5th November, to be present at the last meetings of the Congress.

From Aix-la-Chapelle, Alexander von Humboldt returned to Paris, where he devoted several years exclusively to his studies.

CHAPTER VII.

JOURNEY TO ITALY WITH THE KING OF PRUSSIA—ASCENT OF MOUNT VESUVIUS—VISIT TO BERLIN AND TEGEL—REMOVAL FROM PARIS TO BERLIN—HUMBOLDT'S PUBLIC LECTURES IN BERLIN—FIRST SKETCH OF "KOSMOS"—OFFER OF THE EMPEROR NICHOLAS—THE SOCIETY OF NATURALISTS IN BERLIN—FAMILY AFFLICTIONS—APPOINTMENT TO THE CABINET—DEPARTURE.

WHILE Alexander von Humboldt was living a quiet and studious life in Berlin, the course of his brother William was a more animated and a more public one. On the 12th August, 1819, he was appointed Minister of the Interior with Von Schuckmann, but on the 31st December, he, with the Chancellor von Beyne, retired from the ministry into private life, in consequence of their opposition to Prince Wittgenstein and the Lord Chancellor Hardenberg. After this, William also devoted himself entirely to science and art, and his house—the first story in the house of Councillor Rush—was the meeting-place of the best society, including princes, ministers, scientific men, and distinguished women, such as Rahel, Beltina von Arnim, Charlotte von Kalb, Countess Schlabrendorf, &c. But he missed his brother Alexander in this brilliant circle of science and art, and it was his dearest wish that Alexander should change his residence in Paris for one in Berlin. But Alexander found all the intellectual resources he required in the great capital, and no other town was able to afford them. He was, besides, in constant personal intercourse with his scien-

tific friends and assistants, especially Arago, Gay-Lussac, Julian, Cuvier, Valenciennes; and the constant addition of new and strange elements, made Paris especially agreeable for his studies.

William had commenced the alteration of his mansion of Tegel in 1822, and on the spot where he and Alexander had spent their childhood, a splendid building now stood, whose interior was ornamented with productions of all branches of art. But another diplomatic appointment had nearly taken him again from Tegel. In 1822, the Lord Chancellor Hardenberg died in Genoa, and the minister Von Voss, who enjoyed the king's confidence, was fixed on as his successor, but also died, on 23rd January, 1823, which caused some embarrassment in the choice of a prime minister. The Count Kleist von Nollendorf, who would have been called to the post, also died, strangely enough, on the 17th February, and the king's choice would now, though not without hesitation, have fallen on William von Humboldt, had not other diplomatic considerations prevented Humboldt's return to office. The General von Witzleben had represented to the king that he was the only man completely qualified for such a high position. But he remained in Tegel, quietly devoting himself to arts and science, and thus had more leisure and time to welcome his brother Alexander on their paternal grounds.

When the king of Prussia proceeded to the congress of Verona, in 1822, Alexander von Humboldt, coming from Paris, met the king in Verona, and accompanied him from there on his journey through Italy to Venice, Rome, and Naples—an excursion which is of peculiar interest to science, because Alexander von Humboldt ascended Mount Vesuvius three times between the 22nd November and the 1st December; partly to repeat and correct his former barometric altitude measurements, partly to examine the edge of the crater, and its condition after a previous violent eruption. He had ascended it once before, with Leopold von Buch and Gay-Lussac, on the 12th August, 1805,

when he was visiting his brother in Rome, on his return from America.

- Alexander returned to Berlin, from Italy, with the king of Prussia, and arrived there in the commencement of 1823, and was warmly welcomed in Tegel by his brother William. He spent some months of mental activity here, as not only the learned friends of Berlin eagerly seized the opportunity of his presence, to associate directly with the celebrated man, and draw from the rich spring of his knowledge ; but he also obeyed the beneficial and agreeable impressions of home, and, in his brother's society, exchanged the memories and experiences of a new tropical world, on the spot of his earliest boyish dreams. During his visit to his beloved brother, those circumstances took place at court which we have already mentioned, and which had nearly summoned William von Humboldt, from the calm pleasures of a fraternal visit, into the restless, public, political world.

Berlin and Germany enjoyed the honour of harbouring its celebrated naturalist but few months. The desire to be near his fellow labourers in his great work, and the thirst for the magnificent resources of sciences in Paris, attracted him to the capital, where he was literally and practically active for natural science. But what fraternal love alone could not effect, was soon afterwards made possible by the king of Prussia's invitation. The king had formed a great partiality for Humboldt's person, and had expressed the wish that he would remove to Berlin entirely, that he might be the welcome companion and scientific adviser of his king. It was not royal favour, or vanity, or pride, which now determined Alexander to choose his native town as his dwelling-place ; the wish of the affable king, who honoured science in Humboldt, only gave the impetus to a determination, whose deeper motives had been long working in the natural feelings of the noble man, and whose carrying out needed only that more powerful impulse to tear him from the chains formed in Paris by his scientific

pursuits. He had often felt and expressed the desire to live together with him from whom he had always been separated, although their characters were so similar, their talents so nearly allied, that they completed and assisted each other, and although most tender affection united them. He had determined to live for his brother William, when the king summoned him to Berlin.

In the autumn of 1826, Alexander von Humboldt went to Berlin to satisfy his king's wish, and to announce his approaching removal to his brother William. He only remained till the middle of December, as the change of residence required his presence in Paris, to arrange the commenced and projected scientific plans, to prepare his instruments and collections for the journey, and to design many works which his friends were to complete.

He was on the point of returning to his Prussian fatherland, in February, 1827, when a visit from Berlin temporarily gave a new direction to his movements. The count Bulow—William von Humboldt's son-in-law, who had accompanied him to London, as secretary of legation on his embassy, in 1827, and had married his daughter Gabriele, in 1821—had just been appointed ambassador to London, and was now proceeding to his post through Paris, without his wife and family, when he found a companion in Alexander von Humboldt. In London, Alexander was most honourably and kindly received by Canning; he, however, did not remain long there, but continued his journey to Berlin, through Hamburg. On the 21st May, 1827, William writes to his friend Gentz: "Alexander is here also, and has taken up his residence. He is more active and lively than ever, and we often speak of you."

Henceforward, Alexander remained in Berlin, though not uninterruptedly; he lived in the immediate neighbourhood of the king, and was often with him in Potsdam, accompanied him on his journeys, and only proceeded once a year, for some time, to the

French capital, which had, since 1804, been to him a second home, abounding in friends and in agreeable reminiscences, and opportunities for study. But he found the same also in Berlin. At his first arrival, he met Fresherr von Stein, who had come to Berlin on a lengthened visit, intended partly for the Humboldts. In May, A. W. von Schlegel arrived on a visit to his friends, after an absence of twenty years, for he had, through the exertions of William von Humboldt, been appointed professor at the then commencing university of Bonn; and his presence was rendered particularly interesting by his public lectures on the theory and history of plastic arts, which were delivered before a select audience. All these individualities exercised a beneficial influence on Alexander, and induced him to deliver a public lecture to the Academy of Science, on his favourite subject, the varieties of temperature on the earth.

But in July of the same year the two affectionate brothers had to separate again, and this time the reason was a sad one. William accompanied his wife, who had been ill for several years, to Gastein, as the bath had benefited her the previous year, and he could not bear to leave her in the then delicate state of her health. He cherished the hope also of meeting his friend Gentz there. The bath operated beneficially, and they returned to one of their estates towards the end of August, and to Tegel in October. But William did not remain long in his beautiful little castle, as a great intellectual treat summoned him to Berlin. Alexander von Humboldt commenced his lectures on physical cosmography on the 3rd November, 1827. The announcement sufficed to assemble all the intellect of Berlin and its vicinity to hear the celebrated naturalist.

As he had before done in Paris, in the French language, Alexander now, in his native tongue, gave the rich fruits of his researches in physical cosmography to the public, in a course of lectures delivered before a select but numerous assemblage. He enchanted his

hearers by the peculiar force of his intellectual clearness, and by his eloquence, by the genuineness and warmth of his feelings, and by the inexhaustible novelty of his subject ; he stood before them as a convincing, inspiring teacher, who, like a talented creative artist, brought a series of wonderful natural pictures of a boldly-explored world before an attentive public. This course of sixty-one lectures, commenced on the 3rd November, and concluded on the 26th April, 1828, was, as it were, the first sketch of the "Kosmos," published subsequently as the result of his life and studies, given to the world in one work, whose contents may be compared to a mine rich in precious metals, and which such persons can best appreciate who already have a general knowledge of natural sciences.

The first lectures which Alexander von Humboldt gave in the university building, and which no scholar living within a practicable distance missed, caused such a great sensation, not only in the town but in all parts of the country, that scholars and friends of science frequently came from long distances to be present at least at one of these lectures, of which they could read the reports and effects in nearly every newspaper, and to be able to say they had seen Humboldt.

When some of the first lectures had been delivered, the press of people from all ranks was so great that Humboldt was literally forced to give a repetition of the first course, adapted for a more general public, nearly contemporary with the others, in the large hall of the Musical Academy. And these popular lectures were eagerly visited by the highest and the most learned persons in the town. The king, the royal family, the court, the highest lords and ladies, attended regularly and listened with the people, which showed its pride in the celebrated man by its enthusiastic admiration. Here Alexander stood immediately before his fellow-countrymen as an intellectual giant and inexhaustible spring of mental riches. Every one, even the lowest and most ignorant, heard

his name,—he was something wonderful, mysterious, and remarkable, and they thronged to see the man who had discovered a new world. His brother William wrote to a friend in Vienna, who considered every intellectually-uncommon development as something demoniacal:—"Alexander is really a '*puissance*,' and has gained a new kind of glory by his lectures. They are insurpassable. He is always the same; and it is still one of the principal features of his character to have a peculiar timidity and undeniable anxiety in the mode of his appearance."

These lectures of Humboldt were also new and remarkable, in respect of the position he took towards the people. For, while other learned men, whose social position is always higher than that of the people, nearly all, in their scientific and academic pride, did not deem it worth their while to disseminate their knowledge among the people, whom it must, ultimately, most benefit; while they generally keep their learning as the property and mystery of a caste, and interchange it among themselves; while they consider it *infra dig.* and degrading for a man of science to popularize his knowledge; Alexander von Humboldt set them the noble example, that a baron, a chamberlain, a privy councillor, and confidential adviser of his king, did not consider it beneath his rank and dignity to appear publicly as the teacher of his favourite science; he showed that a true man of science does not attach himself to an exclusive caste, and that all considerations of birth, rank, and title, are as nothing in the high service of science. And thus, Alexander, in the impulses of his heart and of his mind, fulfilled the noble duty which the mentally gifted man owes to his people—of bestowing on them, and instructing them with, the rich treasury of his knowledge and experience, thereby raising them nearer to himself.

William von Humboldt had waited for the termination of Alexander's course of lectures, in April, 1828, before he started on his last journey, which led

him, for a few weeks, to Paris, whence he visited London, in order to accompany his youngest daughter, Gabriele, thither, who had been married to the Prussian ambassador, Von Bülow, and had hitherto remained in Berlin. His wife and eldest daughter accompanied him, with the intention of visiting Gastein on their return, while Alexander, who at first intended to proceed to Paris with his brother, was detained in Berlin by important affairs. His public lectures on physical geography had excited the universal wish that he would reprint them for the general public, and thereby make them available for such students, whose distance from Berlin had precluded them from hearing the famed lecturer. This wish had become an universal one in Germany, and was urged most pressingly in all the public journals. At last, Alexander von Humboldt consented to prepare his lectures for publication, under the comprehensive title, "Kosmos."

But this great work was first interrupted, then delayed for several years; and, "Kosmos," enriched with new views and experiences, was not given to the world until years after.

Humboldt had long secretly cherished the plan of a journey to Asia. The Russian minister, Romanzow, had offered him an expedition to Thibet, in 1812, which, as we have before stated, was prevented by the French campaign against Russia. When Humboldt met the king of Prussia at Aix-la-Chapelle, in November, 1818, his favourite plan of exploring the highlands of central Asia, and, if possible, the gigantic mountains of India, those legendary districts promising rich fruits for scientific research, had induced the king to offer him a sum of 12,000 thalers annually, for the duration of the expedition. The plan was not executed at the time, but by no means abandoned.

The Emperor of Russia had again agitated the subject in 1827, at the time when Alexander von Humboldt was busy with his public lectures. The Emperor Nicholas made him the magnificent offer

of forming an extended expedition in the Russian dominions at his sole cost, with the express injunction to consider the advantages which the Russian government might draw from his researches in the mining capabilities of the country merely as of secondary importance, and to devote himself solely and entirely to the advancement of science.

Humboldt could not refuse such a proposal; but that he did not at once, in the spring of 1828, make use of it, shows the highmindedness of the man, for he held it to be his duty first to complete his public lectures, and to sacrifice his personal desires to the promise he had given to the public. But he deferred his publication of the lectures to prepare for the great journey to be commenced in the spring of 1829, and to arrange his plans with the other naturalists whom he was to choose to accompany him.

Humboldt's devotion to natural science made the year 1828 important far more than the preparations for the Asiatic journey. For the purposes of comparative researches, he caused the temperature to be measured in all the Prussian mines, and this led Humboldt's reflective and comparative mind to new results; and besides this, he was occupied in the autumn of this year by the seventh annual meeting of the German naturalists and physicians (an institution originated in Oken), which held its sittings in Berlin this time, and elected Humboldt, and Lichtenstein, as presidents for the year.

Here Humboldt's penetrating mind was again revealed in his just conception and comprehension of science and its duties, which consist partly in extending and popularizing knowledge, partly in exciting to further inquiries, in gaining new disciples, and in making itself of practical utility in life, and of educational service for the people.

These annual assemblies failed to fulfil their purpose, partly because the different branches of natural science were not properly separated from each other, and the constantly-increasing material could not be

surveyed, and certainly not arranged in the few days that the assembly lasted. Humboldt soon recognised this imperfect arrangement, and caused the institution of sections for the various special departments, in which every one had the privilege of an interchange of progress, and only the universal matter of general science was debated in the general meetings. Humboldt opened this seventh annual convention with a profound speech on the spirit and utility of such annual meetings, and his words had, as always, such a deep influence over the whole intellectual world, that soon afterwards annual convocations were instituted on the model of the Society of Natural Historians in England and in Italy.

But the year 1828, spent by Alexander von Humboldt in working for science, and in preparations for his great Asiatic journey, also brought an event which afflicted him deeply.

We have already stated that the wife of William von Humboldt had been ill for several years,—that she had frequently visited the baths of Gastein for the benefit of her health, and that she had, after the termination of Alexander's lectures, accompanied her husband to Paris and London, to use the baths on her return. When she returned to Tegel, with her husband, in the middle of September, her chronic disease attacked her with greater violence than before, and by the end of November, she was lying in constant expectation of her approaching dissolution. What Alexander must have suffered we can judge by his feeling heart, which had so often revealed itself in his life, and in his works. What must have been his feelings when he saw his ardently loved brother grieving inconsolably by the death-bed of his adored wife; and when he felt the last hour of his dear sister-in-law, so pre-eminent for all the virtues of heart and mind, inevitably approach! The dissolution did not take place as soon as was anticipated; she survived the new-year's-day of 1829, and on Sunday, the 22nd of January, when Alexander had been with her in Tegel,

he writes to his friend Rabel these few words, which will express the deep grief he felt: "She was dying; opened her eyes and said to her husband, 'Another human being is ended.' She expected her death, but in vain; she lived again, and took an interest in what was going on around her. She prayed much."

In this condition she lay until the 26th of March, 1829, on which day it was announced in Berlin, under universal mourning, that death had released her from her sufferings. Her early death was an unfortunate event, for her travels had brought her into intimate relation with all the celebrities in science and art; her house had always been the centre of the most agreeable and intelligent society in Rome, Vienna, Paris, and Berlin. We can imagine what Alexander must have suffered, when we know his brother's grief. Both brothers, so intimately and affectionately united, in life and in study, always shared joy and grief with each other. William's love for his wife had increased each year, and her death again revived, and heightened that sentimental devotion, which had been in his youth a feature of his character. The thought of his wife seemed to him an intercourse with a higher world; her image was never absent from his soul; it entered into all his thoughts, and ennobled his own existence. Alexander von Humboldt remained for some time with his brother, and we may assume that the departed one was often present to his mind, for she was the nearest female friend he had related to him by blood and affection; as he had never known the ties of conjugal tenderness, his heart could only have been occupied with the delightful picture of his brother's matrimonial happiness. After the death of his wife, William was almost exclusively occupied with the plan of a monument for the departed one, whose remains rested, until its completion, in a spot of the church-yard of Tegel chosen by herself.*

* This monument was executed by the sculptor Rauch, and erected in the park of the mansion. An alley of cypresses leads to it; and, on the top of the monument is placed a marble statue of Spes, expressly made for Madame von Humboldt, by Thorwaldsen.

Recreation and employment were now absolutely necessary for William, to divert his mind from its grief in the one exclusive direction. Alexander had hitherto consoled his brother, and endeavoured to cheer him, but the time had arrived when he was obliged to leave him for a long period. The service of science called him away.

He was to leave Berlin on the 12th April, 1829, to commence the great expedition into Central Asia, his famous second voyage into the interior of the great Russian empire, to the Ural Mountains, Altai, and the Caspian Sea. Before his departure he probably felt that his mourning brother should not be left in the solitude of the Castle of Tegel, at the grave of his Caroline; and it is probable that he had requested the king, who had become more his friend than his patron, to divert his brother by official employment, for soon after Alexander's departure, the king summoned William to Berlin at the head of a commission for the interior arrangement of the new museum, and this new sphere was most excellently adapted for him, as he was quite *au fait* in these matters, and as he was obliged again to enter into nearer intercourse with well-known men, such as Rauch, Tiech, the sculptor; Schinkel, the architect of the museum; Wach, the painter; Waagen, afterwards director of the picture gallery; and Hirt; also with the art-loving Crown Prince, the present king Frederick William IV., and with the other intellectual circles of Berlin.

But Alexander also received a new public token of royal favour and esteem shortly before his departure. Although it could not fail that a scholar living in the court of his king, who, by his birth, his travels, and his reputation had come into contact with foreign princes, should receive also the symbols of honour and acknowledgment from the highest person in the realm, and should not want the outer decorations of life, it will not be considered superfluous if we mention that before his departure to Russia a rank was conferred upon him which rarely becomes the share

of learned men in Germany. Alexander von Humboldt was appointed an acting privy councillor with the title "Excellency." It was the rank of a minister, and showed that he was the most capable of representing the mind in the kingdom of science, and most proper for governing the realm of knowledge.

On the 12th April, Humboldt left Berlin, after an affectionate farewell from his brother, and we must prepare to accompany him on his new journey.

CHAPTER VIII.

JOURNEY TO RUSSIA WITH G. ROSE AND EHRENBURG, IN 1829—
KASAN AND THE RUINS OF BULGARIA—EXPLORINGS IN THE VICI-
NITY OF JEKATHARINENBURG—THE FEARFUL BORABINSKI STEPPES
—ARRIVAL IN THE CENTRE OF ASIA—WAY TO THE SOUTHERN URAL
DISTRICTS—FROM ORENBERG TO ASTRACHAN—RESEARCHES AND
JOURNEY ON THE CASPIAN SEA—RETURN—RESULTS OF THE ASIATIC
JOURNEY.

ALEXANDER VON HUMBOLDT had communicated with Gustav Rose and Ehrenberg, two naturalists, living in Berlin, and had induced them to accompany him on his projected journey. Each of the three travellers had a special branch of activity allotted to him, so that it might be more easily possible to superintend and arrange the rich materials certain to accrue on this journey. Humboldt undertook the observations on magnetism, the results of geographical astronomy, and the general preparation of the geognostic and physical plan of North-Western Asia. Gustav Rose undertook the chemical analyses of mineralogy and the subsequent keeping of the travelling diary, while the botanical and zoological labours fell to Ehrenberg's share.

The munificence of the Emperor Nicholas does indeed deserve warm acknowledgments, and has been of great advantage to science, which owes it to these not inconsiderable sacrifices of the Russian government that long existing errors have been cor-

rected, and great progress in the study of the physiology of the earth has been made. Therefore Alexander von Humboldt states in his dedication to the Russian emperor that he had vividly appreciated the munificence shown to him in the mountains of the Ural chain and on the shores of the Caspian Sea, where the importance of this expedition and its results were most plainly revealed to him. The emperor had granted that the localities which Humboldt was to explore should be left entirely to his discretion, as the chief aim had been the advance of science, especially of geology and of magnetism, which is of such importance in the present time, and that the material and local interests of the country were only to be secondary considerations.

The Russian minister of finance, the Earl of Cancrin, who has done much for scientific plans and purposes, had made the most appropriate arrangements for the comfort and security of the travellers, and to facilitate their expedition in general. A Russian officer, subsequently the inspector of mines, Von Menschenin, was appointed as Humboldt's constant companion, to give him every information on ways and localities, and to levy the necessary assistance from the Russian authorities; thus prepared, and furnished with all the comforts of Russian hospitality, they left Petersburg on the 20th May, and proceeded to Moscow. At Nischnei-Nowgorod they embarked on the Wolga, and arrived at Kasan on the 4th June. When they had visited the Tartar ruins near Bulgari, the ancient capital of the Moguls, they proceeded over Perm to Jekatharinenburg, on the Asiatic side of the Ural mountains, where Humboldt, during a stay of four weeks, made a series of important observations on the central and northern portion of the mountain ridge. The mountains here afforded him a highly interesting sphere for investigation, in their situation, their form, and their metallic formations. This ridge, consisting of several nearly parallel lines, whose highest point

rises to a height of 4500 to 4800 feet, was extremely remarkable, as much for its extent, as for its direction in the meridian, which was in a line standing perpendicularly upon the equator from the pole, and which reminded Humboldt of a similar situation of the chain of Andes which he had explored in America. These Ural formations—beginning on the sea of Aral, with so-called tertiary formations,* and extending to the greenstone rock on the Arctic sea—contain gold and platina in their northern and central portions, principally where alluvial deposits predominate. This circumstance urged Humboldt to especially interesting inquiries, and he gained, spite of his short stay of four weeks, such important results, and new disclosures on the composition and formation of the gold and platinum contained in alluvial soil, he discovered such a large quantity of new minerals, and made such highly important observations on the relative positions of the various rocky formations, that we should be more surprised if we did not know Humboldt's unwearying industry, and his unusual and practised talent for observation.

When he had visited the malachite† pits of Zumeschefsckoi, the remarkable magnetic mountain, Blagodad, and the famed deposits of topaz and barytes, near Murzinsk; after he had found a piece of pure platinum, weighing more than eight kilogrammes,‡ near Nischnei-Tigilsk, a district which reminded him of Choco, in South America; and when he had, besides this, fixed the astronomic position of several localities, and made several magnetic and altitude measurements, he continued his journey from Jekath-

* By this is understood the strata of earth lying beneath the superficial layers of more modern times, and which consist of upper peat, of coarse lime, and of lower peat.

† Malachite is carbonated oxide of copper. It is generally met with in veined radiating groups; is of silky lustre, and of a fine emerald green colour. It sometimes also occurs in coarse, earthy masses, and crystallizes in irregular rhomboidal cones.

‡ A kilogramme is nearly equal to two pounds six drachms.

arinenburg over Tjumen to Tobolsk, on the Irtysh, and thence over Tara, through the fearful steppe of Borabinski. This steppe is notorious in the whole country, and dreaded by all in its vicinity, for its innumerable stinging insects of the genus *Tipulæ*, but nevertheless Humboldt and his companions traversed it with the same disinterestedness and devotion to the cause of science which we have already had occasion to admire in the heroism of this great naturalist during his Orinocco journey. On the 2nd August he reached Barnaul, on the shores of the Obi, and now the travellers explored the picturesquely-beautiful Kolywanlake, and the rich silver mines* of the Schlaugenberg, of Riddersk, and of Zyrianowski, situated on the south-western side of the Altai mountains. The highest point of this ridge, the mountain Bjelucha, called by the Calmucks, God's Mountain, Jyctu, or barren mountain; Alastu is of about the height of Mount Etna, or, according to the investigations of the botanist Bunge, equal to the Peak of Teneriffe. From Riddersk, Humboldt and his companions turned southward to the little fortress Ust-Kamlenoigorsk, and crossing Buchtorminsk, arrived on the boundaries of the Chinese Dsungarei. Here he obtained permission to cross the boundary, which he at once made use of to pay a short but interesting and productive visit to the Mogul settlement of Bate, also called Chonimaila-chu; and where he entered the real Asiatic district of the proximate centre of Asia, situated north of the Dsaisang lake, on the 17th August.

The return from here to the fortress Ust-Kamlenoigorsk was highly interesting for its geological value, and was suggestive of new researches; for as he was sailing back down the Irtysh, he saw on the secluded shores of these waters, on a surface of more than 16,000 feet, immense rocks of granite, lying horizon-

* It may be imagined how considerable the mines are from the annual proceeds, which amount to above 76,000 marks, or 49,842 pounds.

tally and in layers, and resting on clay-slate, whose layers were partly perpendicular, partly in an angle of 85 degrees. This was a highly-important fact for Humboldt in his theory of the formation of granite.

When he had again arrived at the abovenamed fortress, he proceeded thence through the steppe of Ischim, which belongs to the central tribe of Khirgises, to the southern portion of the Ural chain; he crossed the line of the Cossacks of Ischim over Semiplatinsk and Orusk, and arrived at Mjask. From here, frequent excursions were made into the vicinity. On a district of inconsiderable extent, and only a few inches below the surface, three pieces of pure gold were found, of which two weighed 28 and the third $43\frac{1}{4}$ marks (18 and 28 pounds). The course of the southern Ural was followed as far as Orsk, where the remarkable quarries of green jasper attracted Humboldt's attention, and where his geological studies found abundant scope in the river Jaik, which crosses the mountain-ridge in a north-western direction.

Humboldt now turned his course to Orenburg,* where he arrived by the road over Guberlinsk, on the 21st September. Here in Orenburg, where caravans of many thousand camels arrive yearly, Humboldt made the acquaintance of a certain Herr von Gens, who was a very intelligent man, and interested himself particularly for the geography of Asia, for which he had collected a quantity of important materials. He had travelled far, and Humboldt gained many useful explanations and descriptions from him. Among others, he learned of a high mountain, which had once been a volcano, and which still disturbs the passing caravans by storms which it is said to occasion, and whose anger the inhabitants propitiate by sacrifices of sheep, situated to the north-east of the great Balkasch lake, which receives the waters of the river Sli. Gens had this communication from a Tartar,

* Orenburg lies below the level of the sea.

and Humboldt at once remembered the volcanos mentioned in Chinese books as lying far from the ocean, and which had excited much surprise among geologists in Klaproth's and Amusat's literary descriptions. Humboldt subsequently obtained more accurate information from the Russian police-director of Semipalatinsk, von Klostermann. He devoted special attention to this subject, and on his return composed a highly interesting sketch of the geography of this little-known district, with the object of bringing the remarkable volcano into organic relation with the other phenomena and conditions of the district.

The famed rock-salt mines of Jlezk, in the steppe of the minor tribe of Kirghides, and the chief station of the Uralskian Cossacks, was the next point on his journey. Then he arrived at the German colonies on the Wolga, in the department of Saratow, at the large salt-lake Elton; and then visited the fine colony of Moravian brethren in Sarepta, and arrived in Astrachan, on the Caspian Sea, in the middle of October.

His chief objects in this expedition to the Caspian Sea were to analyze the waters of the largest inland sea of the world with chemical accuracy, and to discover its constituent elements—a task which Gustav Rose undertook; then to make barometric measurements comparative to the measurements in Orenburg, Sarepta, and Kasan, and to collect zoological treasures. The specimens of fish from the Caspian Sea were to complete the work on fishes by Cuvier and Valenciennes,* and Humboldt arranged a little excursion by steamer on this lake, for the purpose of collecting them.

From Astrachan they returned to Moscow, over the isthmus which separates the rivers Don and Wolga, near Tischinskaya, through the territory of the Don

* Of the fish here caught, Humboldt sent a very complete collection to the Museum of Natural History, in the Botanical Gardens of Paris.

Cossacks, across Woronesch and Tula, and arrived in Petersburg on the 13th November. Humboldt remained here only as long as his obligations to the government and court required, and until the receipt of his specimens, and arrived safely in Berlin on the 28th December, 1829.

Humboldt had been absent from Berlin from the 12th April to the 28th December, and such a considerable territory has probably never been explored in such a short space of time. During eight months and a half he had travelled a distance of 2500 geographical miles on land.

This journey, like the American one, was of immense importance for the physical-geographical sciences in their most extensive form. The marvelously extensive materials which Humboldt brought with him, and their application to a just comprehension of the nature of the earth, would not bear compression into a condensed, popularly comprehensible description. The results of the journey were therefore to be published in three works, of which each of the travellers undertook to prepare one. Humboldt's "*Fragmens de Géologie et de Climatologie Asiatique*" was the first to appear; a portion of it, however, only flowed direct from Humboldt's pen, and it contains much varied matter, very productive for further scientific works, and which has been enlarged by Klaproth with important notes.

These Asiatic fragments can only be considered as the forerunner of a greater work; but we must indicate its general contents to show what were Humboldt's chief studies and researches during this journey to Central Asia. The first volume of the original French work treats especially of the mountain-ridges and volcanoes of Central Asia, with additional remarks on the thermo-waters of Alagut, and on the gas-mud and fire eruptions on various spots of Central Asia and America. This shows how Humboldt constantly compared and combined his new discoveries and experiences in Asia with those of America, and

created a picture of the entire earth and its laws from the results of his comparisons. He has everywhere interspersed numerous geognostic observations and notes on the general formation of the soil between the Altai and the Himalaya mountains, and his communications on the remarkable occurrence of volcanoes in the middle of the continent, and far from the ocean, are of great interest. Here Humboldt placed science on a new footing, for he had had the special opportunity of observing the volcanoes in three different quarters of the world. He perceived that the volcanic phenomena could no longer be considered as belonging to geological developments, but that they must be explained by physical history in general, as the volcanic activity seemed to him to be the result of a continual communication between the interior of the earth, which is in a molten fluid condition, and the atmosphere which surrounds the hardened and oxidised crust of our planet. On this theory he explained the still active and the extinct craters, the direction of the mountain-ridges, and the formations of the soil; he deciphered the traces of former terrestrial revolutions, their relative age, and the physical powers which have influenced and still influence the form of the earth's surface. Thus the masses of lava which pour from the craters were to him the petrified streams of formerly gushing springs of the interior of the earth; from the connexion and similarity of effects he traced the causes and conditions of the formation of rocks and superincumbent strata, of the chemical results of volcanic eruptions, of elevations and depressions of the earth's surface. By the strictest investigation of all occurring new appearances, and by penetrating combination of analogous, observed facts, he explained numerous physical and geological problems, whose exact solution had hitherto been deemed impossible. Humboldt thinks that the volcanic activity of our earth, compared to former ages, is considerably decreased; it can no longer bring forth new elevations or heat in the north, but can only produce small

craters, and an agitation of the earth's surface. Before the advent of man into terrestrial nature, a tropical animal and vegetable world flourished everywhere on the volcanically heated earth; now, on the cooled planet, the petrified surface only receives warmth from the sun, the tropical luxuriance died out towards the north, and only flourishes where the sun can exercise its perpendicular influence over the tropics.

In those remote ages of the boiling centre of our earth ball, the hot fluid and the gases it generated often and on many points burst through the firm crust with tremendous force, made clefts and depressions in it into which the molten masses of metal, basalt, and other matter flowed, which were petrified, and now lie in the thus-formed mountain ridges. Thus arose the Cordilleras of the Andes, the Himalaya mountains, and thus was petrified the waving surface of the broken soil into those hills and valleys which transform our plains into picturesque landscapes. From these causes Humboldt explained the peculiarities of the Asiatic soil. The volcanic power which raised mountains and continents, and swelled up the earth-crust bubbling like a gigantic vault, had the consequence that these hollow vaults sank down in the course of ages, and thus Humboldt established that the depression of the surface of the old world, where the level of the Caspian sea, like that of the sea of Ural, lies 32 to 50 toises below the level of the ocean, and where the depression of the firm soil extends as far as Orenburg, Saratow, and south-east probably as far as the so-called central plain, is nothing but a crater-land like that of the moon, where the large points, above 100 miles broad, called Hipparch, Archimedes, and Ptolemy, form a basin formation such as exist also nearer home, for instance, in Bohemia.

Before Humboldt's journey into the interior of Asia, there existed many erroneous notions of the geography, the connexion of the mountain chains, and the productions of the soil of those districts, but an

entirely new view of the country was acquired through this bold and penetrating traveller, who made a large number of independent latitude measurements; and who obtained varied information on travelling routes and local circumstances from travelled Tartars, Bulgarians, and Taschkents, as well as from the Russian officers. The inner, central part of Asia was not, as had been supposed, an immense agglomeration of mountains, nor an uninterrupted table land, for Humboldt established that this part of the world was crossed from east to west by four mountain-systems (by the Altai, which ends westward in the Kirghiz district, by the Himmelsberg, by Kuenlun, and by the Himalaya), which have exercised authenticated influence on the historical migrations of nations. And thus Humboldt discovered a volcanic territory in the centre of Asia, which is 1000 to 1400 miles distant from the ocean, and which presents a surface of 2500 geographical miles.

The second volume of the "Asiatic Fragments" contains, beside the description of the twelve routes, "Observations on the Temperature and the Hygrometric Condition of the Atmosphere in some portions of Asia, and Investigations into the Causes of the Deflection of the Isothermic Lines,"—*i. e.*, the imaginary lines which unite all points on the earth of equal mean temperature. In this volume we have important contributions to a climatic knowledge of that country, and in it are indicated also the causes which produce the deflection of the isothermic lines from the parallel circles.* These results, based on numerous astronomic and magnetic measurements, throw an entirely new light on this branch of science, and are again closely connected with the results of the former American journey, as Humboldt had there also construed the terrestrial laws from similar phenomena in the old and new world.

* The parallel circles run parallel with the equator, and the mean animal temperature generally decreases with their increasing breadth—the approach to the poles.

We must devote especial attention to this subject,—the isothermic lines,—because it plays a very important part in Humboldt's scientific life, and has occupied him much during his whole career as the favourite branch of his studies. In the year 1817, when he published his essay, "De la distribution de la chaleur et des lignes isothermes," in the third volume of the French journal, *Memoires d'Arcueil*, he had already paid great attention to the distribution of heat over the earth, and had endeavoured to determine the direction and form of these isothermic lines more accurately. He also gave a lecture ten years subsequently, on the 3rd July, 1827, before a public meeting of the Academy of Sciences, on the chief causes of the varieties of temperature on the globe, and in his Asiatic fragments, he communicated his detailed investigations and increased experiences upon the subject.

Alexander von Humboldt begins by treating of the climatic condition of Asia, and herein entirely follows the impressions of his accurate comprehensive geographical acquirements, and at the same time extends the subject to the entire earth, and goes back to its universal laws. On this field many errors had to be corrected, and science had to be raised to a new grade. It was formerly believed that the coldness increasing from Europe towards the east was caused by the elevation of the ground above the level of the sea, but it has now been plainly proved by facts that this is not the case, and that, on the contrary, one may travel from the Brabantine heaths eastward, as far as the Asiatic steppes on the western declivities of the Altai, a direct line of 80 degrees of longitude, without crossing an elevation of 1200 to 1300 feet. And travelling in a higher latitude from the Brabantine heaths to the Asiatic steppes, one would cross only unbroken plains as far as above the 65th degree of latitude, a distance of nearly half the earth's circumference. This Humboldt perceived, and that therefore the climatic changes must have other causes than

the hitherto accepted ones ; he developed these facts with skilful application of the rich store of experience he had had the opportunity of collecting in two different quarters of the globe. When he compared the European remarkably warm winter temperature with that of Asia or America in the same latitude, he could no longer, from his experience, content himself with the already-accepted explanation of the unusual European warmth ; it had hitherto only been customary to search for the causes of the coldness in Asia and America, without at the same time considering the warmth of Europe, and looking upon it as an anomaly. Humboldt perfectly enlightened science on this point ; he perceived the reason of the winter warmth of Europe to lie not only in the general form of this quarter of the world, but also in its position beside a large, hot Asiatic zone of continent, which is much more heated by the constant influence of the sun's rays than the mobile and self-cooling ocean which surrounds the other quarters, and which sends its rising warm atmosphere over the plains of Europe, which have a warm winter. A still more important cause of heat he finds in the current of the ocean, called the gulf current, because this current perpetually drives the heated waters of the American torrid zone to the north-east, and its warm exhalations float particularly across the coasts of Great Britain, Ireland, and Scandinavia. Therefore, the west and south-west winds, moving in the same direction with this warm ocean current, blow over the northern part of Europe as warm currents of air impregnated with warm moisture by the exhalations of the sea ; they modify the severity of winter, but as they discharge their warm moisture, they cool more and more, and reach the Asiatic plains as dry cold winds. The west wind, therefore, which brings us damp warmth, brings dry coldness to the inhabitants of the Asiatic plains, and while Western Europe has an insular coast climate, Eastern Europe has more a continental climate, with regularly opposed warmth of summer

and frigidity of winter ; and although on the southern boundary of Siberia the constantly and perpendicularly-falling rays of the sun must generate heat, this has no other consequence than that a very hot summer there succeeds a very cold winter. Humboldt nowhere found finer grapes than in Astrachan, on the coast of the Caspian Sea ; and yet here, and still further south, in Kislar, at the mouth of the Tarek, in the same latitude as Avignon and Rimini, the cold in winter is from 28 to 30 degrees of Celsius' thermometer. Humboldt calls this great contrast between summer's heat and winter's cold a peculiarity of Siberia ; the vines there must be buried deep in the earth in the winter, and in summer, on account of the dry heat, they have to be artificially refreshed by water. As high as the 58th degree of latitude, Humboldt could ascertain the mean temperature of the localities with tolerable accuracy from the temperature of the springs. A little further north the ground remains constantly frozen to a depth of from 12 to 15 feet, while in Norway, which is as near if not nearer the north pole, fresh moss and grass grow beneath the snow, even in winter. Humboldt had a spring dug in Bogoslawsk in the middle of winter, and came to ice nine and a half feet in thickness six feet below the surface, and it is remarkable that, in spite of these subterranean masses of ice, the short but powerful summer's heat quickly thaws the upper crust, and produces a very abundant harvest.

All these observations, with others arising from them, and further investigations, were combined to geological truths of scientific importance in Humboldt's active mind. From these causes, he solved the formerly inexplicable riddle, how remains of animals whose organization belonged to a hot climate—for example, even the mammoth—had been found in a state of decay in the iceblocks of these northern regions. Not long since, East Indian tigers were exhumed there, in the same latitude in which Hamburg and Berlin lie ; and it is Humboldt's

opinion that the southern animals had wandered too far north into higher latitudes in hot summers—especially in former ages, when, by the greater volcanic activity of the then hotter earth, those northern regions, also, must have had a higher temperature—that they had been suddenly overtaken by the winter, and had been buried in ice which has not melted since that time; and that inundations of rivers, flowing northward, on whose shores numerous remains of southern animals may yet be found, may have washed them towards the north.

Humboldt also acknowledged the direction of the winds and tides, as one modifying cause of the climate prevailing over certain large portions of land, and these again stand in intimate relation to the form of the continent, and often divert the isothermic lines considerably from their regular course. This explained, clearly, how two countries or districts lying under the same degree of latitude, but at a great distance from each other, could have two entirely different climates.* Humboldt showed how the revolution of the earth on its axis must cause the great current of the waters of the ocean to flow from east to west, and that this current must be the strongest at the greatest peripherium of the earth, beneath the equator; that another current from the poles towards the greatest peripherium, must necessarily co-exist, which must flow from the north pole, first towards the south, and then westward, following the chief current.

The cold waters coming from the polar circles therefore, wash the eastern shores of the countries of the earth, while the heated waters, flowing back from the equator, beat against the western coasts. The prevailing winds blow analogously with these ocean tides; and hence the coldness of the eastern, and the warmth of the western coasts, are self-evident. We

* These theories of Humboldt have been worked out by Schouw and Dove, who have founded many important facts on this basis.

can, therefore, not be surprised at the coldness of Northern Asia, as the north-east winds prevail there.

Humboldt has also extended these studies on climate, to the special local influences; and has scientifically explained the co-existing effect of the rays of heat. This radiation of heat is variously modified by the nature of the soil, its cultivation, its vegetable world, even by the form of the plants, and situation, and direction of their leaves; it reflects the warmth generated by the sun's rays, from the surface of the earth back into the atmosphere, and exercises a great influence on the climate.

In this way Humboldt established a climatology, for which he had collected the elements as a favourite occupation, from the commencement of his studies; he gained rich material from his own experience, and did not reject the experience of others, which he was able, in his own genial manner, justly to apply.

But the Asiatic journey became of vast importance in its more extensive results. Where Humboldt could not himself institute observations, he arranged further studies for others, with prudence and foresight. In many parts of Siberia, he left carefully compared thermometers, in the hands of competent and intelligent persons, and awakened the taste for these measurements and comparative experiments, especially among the Russian mining superintendents of the Ural mountains. In addition to this, he gained the assistance of the imperial academy of St. Petersburg, by submitting to them an excellently regulated plan for instituting over the entire extent of the Russian empire a regular system of observations on the daily changes in the state of barometer, thermometer, and hygrometer, on the temperature of the soil, the direction of the wind, and the moisture of the atmosphere. The interest which all the members of the academy took in Humboldt's plan, was increased by the emperor's interest; and if it is taken into account that the Russian empire presents a surface larger than the whole visible

surface of the moon, it will be comprehended what important laws of terrestrial organization can be deduced and revealed by contemporary and comparative observations over such a large field. The Russian government at once acknowledged the importance of these plans, and instituted a physical observatory in St. Petersburg, whose task it was to choose the other observatory stations, to compare and adjust the instruments with which the experiments were to be made,—accurately to determine the astronomical position of the stations selected, to superintend and direct the magnetic and meteorologic researches, to arrange the collected results, to calculate them, and to publish the mean results.

The special mineralogic geognostic experiences and inquiries which had resulted from the Asiatic expedition, were confided to the care of Gustav Rose, one of Humboldt's companions. His work appeared in two volumes in the years 1837 and 1842, as a portion of the collective work,* under the special title "Mineralogical geognostic division and historical account of the journey," and Humboldt had given the compiler a large number of notes and observations from his own diary. But before the third part of the collective work appeared, which was to contain the botanic and zoological results arranged by Ehrenberg, and the investigation into the geographic distribution of plants and animals, Humboldt published another new work under the title: "*Asie centrale, recherches sur les chaines des montagnes et la climatologie comparée*," (Paris, 1843, in three volumes,) which was soon afterwards enlarged and translated into German, by W. Mahlmann.

This work is the real result of the studies, which Humboldt had for many years devoted to this subject. We have mentioned in former chapters, when he first

* The collective title runs thus: "Expedition to the Ural, the Altai, and the Caspian sea, by command of his majesty the Emperor of Russia, in the year 1820, made by Alexander von Humboldt, G. Ehrenberg, and Gustav Rose."

planned a journey to Asia, and if possible, to East India, with what perseverance and trouble he had prepared himself for a journey to the little-known districts of Central Asia. He was then excited to it by his favourite project of travelling to these unknown territories, over Kashgar or Persia. He freely acknowledges, that this has always been a favourite idea of his, and if he speaks of it now, he declares that he regrets nothing so much in his old age, than that he did not then carry out that cherished project. But the preparatory studies for that plan were not lost to science, for they gush forth amply in this work on Central Asia, and give it a serious characteristic of profoundness and great erudition. After the publication of the Asiatic fragments, in 1831, twelve years elapsed, during which he collected a multitude of fresh materials, especially the communications received from his correspondents in Russia, entrusted with the comparative observations, and from the physical observatory of St. Petersburg. The entire surface of the Russian territories had been lying open before his mental perceptions for twelve years, and it is, therefore, very natural that Humboldt preferred, instead of preparing the required second edition of his Asiatic fragments, to write an entirely new work, which might include the considerably increased facts of his geological experience. Only he was able to conceive, and to realize such a work, for, whatever he, as a single individual, was not able to master, was gladly prepared for him on all sides by the disinterested and voluntary assistance of the most profound scholars and oriental linguists of the Chinese, Arabic, and old Indian Zend dialects, and by celebrated naturalists, such as Klaproth,* Stanislaus Julien,† and Eugène Burnouf.‡

* Klaproth prepared new notes from Chinese sources.

† Member of the Institute of France. He gave special physical and orographical (of mountains) explanations; and Humboldt publicly declares that he feels himself honoured by his friendship.

‡ He made ethnographical and geological investigations on passages in the Zend books for Humboldt's work, and Humboldt himself calls his labours most surprising.

Geography gained new sources of information. The knowledge of the direction, the construction and the geological peculiarities of the great Asiatic mountain ridges, acquired an extraordinary degree of profundity and accuracy, by Humboldt's method of the constant comparison of all scientific elements; and the regular taking into account similar and opposite experimental results in Asia, America, and Europe, created a climatology, which was founded on the most important revelations of all the natural sciences. Only the adept in the science of nature can entirely perceive and comprehend Humboldt's greatness; the uninitiated can only admire the mysterious extent of his labours, and Mahlmann, the German translator of "Central Asia," who had given a sketch of Humboldt's labours several years before in the *Illustrierte Zeitung*, concludes his preface to the German edition of the work, with the following enthusiastic words:

"If Alexander von Humboldt be the chief founder and representative of that condition, to which research has developed itself in our century, striving after universality in everything; and, if for that reason alone, each of his works is a great inheritance for future generations, we are more than ever impressed with admiration in his investigations on the formation of the earth, how the most profound study of countless sources of knowledge were united in Humboldt, with the most comprehensive acquirements in all branches of human knowledge. We see with increased interest, with what talent Humboldt recognises the mutual interconnexion of all branches of natural sciences, and the eternal influence of nature, on the life and destinies of nations, and with what unusual simplicity he can represent it. With increasing delight we watch him in the art which few possess, of collecting, regulating, and sifting a chaos of facts, and then of combining them to universal ideas and reflections in which all individual facts meet as the rays in a focus. Then we perceive with astonishment, how, by the union of these rays, the

internal connexion of apparently foreign phenomena, is clearly understood, and how Humboldt has gradually introduced us to those great natural laws which rule in the apparently anomalous whole, and which had been hitherto concealed from the eye of the student." Humboldt's travels are not written for the great public, and therefore they have all been modified by other writers for the popular taste; but these modifications even are only intelligible to the more intellectual reader, and can only be appreciated by him. Every man, even the illiterate follower of material interests, knows the name of Humboldt, but his works are only read by the thinkers, for it is not Humboldt's manner to describe his personal adventures on his travels, and afford that amusement, which the travels and voyages of many others are intended to awaken. His descriptions are all distinguished for their real scientific character, which requires intelligence, education, and serious reflection in the reader.

The results of the Asiatic journey, which Humboldt has given in his work on Central Asia, are very various, and cannot yet be combined under one common head. The most important new investigations which have here led to further inquiries, are the treatise on the mean altitude of the great continent of the earth, on the table-lands of the interior of Asia, on the mountain system of Knesslun, on the depression of the Caspian Sea, and its environs, below the level of the ocean; also historio-geographical investigations into the former course of the River Oxus, and communications on the boundary of perpetual snow. Besides this, the work contains plates, which give the mean temperature of more than three hundred places, and besides the voluminous geognostic revelations of the Ural, the volcanos, the beds of gold, and on the produce of the gold washings in the Ural districts, and in Siberia, on the diamonds in the mountains, there are explanatory essays by Stanislaus Julien, on Chinese historical sources, additions by Klaproth, on volcanos, notes by Valenciennes, on the sea-dogs of the Caspian Sea, &c.

The work abounds in important results, and includes a chart of Central Asia, drawn by Humboldt himself, which is prepared entirely according to the latest astronomic and altitude measurements. The calculation of the astronomical observations made for this purpose, in Siberia, was the last work of Humboldt's constant fellow-worker, Oltmann, who died soon after the completion of this task.

CHAPTER IX.

ALTERNATE RESIDENCE IN BERLIN AND PARIS—DIPLOMATIC EMBASSY
—DEATH OF WILLIAM VON HUMBOLDT—LITERARY ACTIVITY—
HUMBOLDT'S RELATION TO KING FREDERIC WILLIAM IV.—DIS-
TINCTIONS—RETROSPECT.

AFTER Humboldt's return to Berlin on the 28th of December, 1829, he commenced the great literary labours on the stupendous material which was to be prepared for publication by himself and fellow-travellers, as the result of their voyage. Although Humboldt had fixed his residence in Berlin, the publication of his work on Asia soon necessitated a longer stay in Paris; for in that city lived friends and scholars, whose personal assistance was required for his great literary purposes. So he spent his time alternately in Paris and in Berlin. In 1830, the peace of Europe was terribly shaken by the French revolution. The people demanded new arrangements; the sense for political life was aroused; the Polish nation demanded their freedom; and Germany in general, but Prussia in particular, was in a critical state.

Alexander von Humboldt had never interested himself in the details of politics; but he who enjoyed the personal affection and complete confidence of the king,—who, in the sphere of sciences, belonged to two nations—for the French ranked his works among the highest of their national literature, and claimed him for the honour of their country; and Germany, to which he belonged by birth, did the same—he seemed

in the critical moment, when France and Prussia had been momentarily disturbed in their friendly relations, as the most fitting mediator between two nations who were both proud of him. Therefore, King Frederick William III. sent Humboldt to Paris, in September, 1830, with the diplomatic mission to acknowledge King Louis Philippe, and the new dynasty; and in February, 1831, he was again sent thither on a diplomatic mission, while his brother William was also at this time summoned from his private position, and by the decoration of the order of the Black Eagle, and admission into the Council of State, received—as Alexander said a few days before his departure for Paris (on the 26th of September, 1830)—a kind of compensation for the former slights of the Chancellor Hardenberg. It is very probable that Alexander von Humboldt availed himself of his confidential position with the king, to speak of his brother William to him, and to bring about this restitution.

Henceforward the brothers lived quite for each other, and their social, as well as their intellectual joys, flowed from the common fount of love. The exchange of their ideas was now a personal, direct one, and the former long separations were compensated by the most intimate interchange of knowledge and of feelings. We quote what the biographer of William von Humboldt (G. Schlesier) says on this subject: "William now had his brother Alexander constantly with him; and how much had they not to speak who had been so long separated, and who, for reasons which may be easily imagined, could not even express their affection in writing. The letters they interchanged were rare and barren, like a landscape without water or vegetation; for, as is generally the case, they did not even communicate to each other what they might unhesitatingly have written. What must have been William's joy at the return of his brother, and when he saw him, the younger and stronger one, advance gloriously on his career. We know how their studies had always been in common

from their childhood upwards, and how each affectionately watched the other's course, and how in their totally different pursuits, those fields of intellectual enjoyment, on which they could both meet, were never overlooked. When the one brother was deep in the laws of intellectual and historical life, or among the remains of extinct nations and languages, and seemed chained to one spot in his studies; while the other examined the physical world in its enlarged sphere; both could meet again on the subject of the nature of the human mind, of the races of man, and the diversity of languages. But even when their respective spheres were farthest asunder, their perfectly harmonious education, their disposition and character, and even the manner and eloquence of their style, reveal their common origin, and the intimate connexion of their whole being. It can therefore not surprise us that these brothers are honoured by the title of 'the German Dioscuri.' "

Alexander von Humboldt must also have been in Weimar in 1831, and have visited Goethe, for we find in a letter from Goethe to William von Humboldt, dated the 1st December, 1831, the passage: "I owe some hours of a frank, friendly conversation to your brother, for whom I can find no expressive title. For although his views of accepting and operating on geological objects is quite impossible for my cerebral organs, I have seen with real interest and admiration how that of which I cannot convince myself, is with him clearly deduced, and enters into combination with the stupendous mass of his knowledge, where it is then digested by his most estimable character."

In 1830, already William von Humboldt regarded the physical strength of his younger brother as a fortunate circumstance, to which he attached the hope that he, as the survivor, would arrange and superintend his literary inheritance, as he could not imagine a fitter person. This hope was soon to be realized. Fate granted but a few years of close union to the

two brothers, which union had also brought Alexander into nearer social intercourse with the friends of his brother,—such as Goethe, Wolff, Frau von Varnhagen, Kareff, Colta, Gentz, &c. Many of William's friends had already been called from this life, when he was seized with debility in the winter 1834-5,—among them Niebuhr and Stein in 1831, Goethe and Gentz in 1832, Hegel, and Schleiermacher. He was living at Tegel at the time, with his eldest daughter Caroline, the lady Adelheid von Hedemann, who had, with her husband, been living some years with her father and Frau von Bülow, while Alexander was in Berlin, anxiously awaiting news of his brother's health, as his nervousness, his stooping, and the trembling of his whole body, had alarmed him. Dieffenbach and Rust were attending him, but a cold which he took on the birthday of his departed wife, over her grave, hastened his death; he died on the 8th April, 1835, in Alexander's arms. During the last illness of his beloved brother, Alexander wrote a letter to Varnhagen,* which expresses his fraternal grief; and immediately after his death, he wrote from Tegel to Arago, in Paris, which letter as evidently shows what the surviving brother

* The letter is as follows :—

“Berlin, 6 o'clock a.m., 5th April, 1835.

“You, my dear Varnhagen, who do not fear pain, but consider it reflectively in the depth of the feelings, you must receive a few words of love which the two brothers feel for you in this mournful time. The dissolution has not taken place yet. I left him at eleven o'clock last night, and hasten hither again now. Yesterday was a less painful day: he was in a half soporific condition, had much and not very restless sleep; and, at each awaking, words of love and consolation, and the clearness of his great intellect, which comprehends everything, and examines its own condition. His voice was very weak, hoarse, and sharp, like a child's, therefore the physician applied leeches to the larynx. He is perfectly conscious. ‘Think often of me,’ he said, the day before yesterday, ‘but always cheerfully. I have been very happy; to-day also was a happy day for me, for love is the greatest happiness. I shall soon be with your mother, and comprehend the laws of the higher world.’ I have no hope. I did not think my old eyes could shed so many tears. It has lasted now eight days.

“A. V. HUMBOLDT.”

had lost.* Alexander has since fulfilled the noble duty towards the sacred memory of his brother by superintending his literary remains, and by publishing them regularly.

Alexander soon again devoted himself exclusively to science, and a year rarely elapsed in which he did not cast a fertile glance into the kingdoms of nature, or did not discover some new treasure for science. Of his brother's manuscripts, he made his extensive researches on the Kawi-language into a subject for his own labours, for he had himself collected the materials for it, and its publication was therefore especially interesting for him. He lived on, working, and producing labours even in others, who often took a thought or single fact from Humboldt, developed it, and were led by it to important results. His Asiatic works occupied the principal part of his time, and necessitated an extensive correspondence with his friends in Russia and Paris; and besides this he had constantly to superintend and direct the labours which others devoted to his purposes.

Besides this, he was employed in the continuation of formerly-commenced works, and with his "Critical Investigations."† In 1838 he published a politico-economical essay on the variations in the supply of

* One passage of this letter says: "I am in the deepest grief, and at such times one thinks of those dearest to us. I feel a little relieved while writing to you. . . . I remain quite desolate. I hope that I shall have the pleasure of being with you this year. . . ."

† These critical investigations on the historical development of a geographical knowledge of the new world, and the progress of nautical astronomy in the fifteenth and sixteenth century, appeared originally in French, and were published in German, by J. L. Ideler. They contain the most important results of Humboldt's leisure hours during thirty years, and are the foundations of a history of Columbus, which he once intended to write.

The work is in four divisions: the first treats of the causes which prepared and led to the discovery of the new world—the second, of several facts more nearly relating to Christopher Columbus, and to Amerigo Vespucci, and of the dates of several geographic discoveries—the third, of the first maps of the new world, and of the time when the name America was first commonly used—and the fourth, of the progress of nautical astronomy and chart drawing in the fifteenth and sixteenth centuries.

gold, in Cotta's quarterly journal, which was an application of his researches in the Ural mountains. In 1839 and 1840 he drew a new hypsometric chart of the mountain-chains and volcanos of Central Asia, which is sketched and completed with wonderful accuracy, and is appended to the revised edition of his work on Asia. The publication of this work was delayed, because Humboldt made several short journeys, especially to Paris and to other German and foreign capitals, but partly because he was disturbed from his private affairs by the death of Frederic William III., an event which touched him very nearly.

His position towards the highest person in the realm remained the same after the ascension of Frederic William IV.; for the latter had always felt the personal intercourse with Humboldt as an intellectual and social necessity. As crown-prince, he had also been a friend and admirer of William von Humboldt, to whom he felt attached by his artistic tastes and by his interest in æsthetic and learned education, although the two were entirely at variance in their political and religious views. Alexander von Humboldt soon became the new king's confidential companion and scientific adviser, and has since always been in the immediate vicinity of the king, with whom he has lived in Berlin, Potsdam, Sansouci, &c., and whom he has, in his advanced age, accompanied on longer and shorter journeys. Thus the Prussian court honours itself with one of the brightest stars of the highest intellect in the person of Humboldt, although it cannot be denied that his relation to the court steals many hours from his valuable life—which should be strictly husbanded—from science, and especially from the completion of his great work.

Down to the present time, Humboldt has devoted much of his time to astronomical-mathematic geography, which science never made such speedy progress until Humboldt's day. By his acute

observations in America he has opened an entirely new sphere for this science, and has constantly worked himself, and urged others to labour in its interests. This made him more and more intimate with the geography of America, and with the history of nautical instruments, in the fifteenth and sixteenth centuries. The fifteenth century may be said to have doubled the works of creation by the revelation of a new world, and has introduced many new objects into the old world, which have gradually tended to change many relations and views of Europe. This era has a peculiar interest for Humboldt, because the human race made an intellectual and material progress by the discovery of America; new fields for commerce and insight into a new world were opened. None other but Humboldt was so fitted to continue the history of those great and bold exploring expeditions. Had *he* not also gone to sea from Spain as the second discoverer of America, and had he not stood on the same spot where Columbus had landed and taken possession of the new continent? And he who, forty years before, had intended to write a history of America, and had even commenced it, though he subsequently abandoned the plan—who had therefore acquired the special knowledge of the territorial and national condition, and had examined with great partiality and eagerness the original accounts of America in the European libraries—he was especially qualified to give a sketch of the cosmographic views of the fifteenth century, and the astronomic systems of that period. He established the most important results in these critical investigations, and proved them by numerous new facts referring to the history of the world, the most ancient histories of man; and adduced the intimate connexion—in spite of the barbarism of the middle ages—between the views and opinions at the close of the fifteenth century, and those of the times of Aristotle, Eratosthenes, and Strabo; and imparted his proofs with surprising lucidity, basing them on the gradual and universal progress of the human

mind. Thus he attributed the great ruling thoughts of life and history to the grand discovery of the fifteenth century. He also constituted himself the scientific defender of his predecessor, Columbus, whose merits his contemporaries and successors notoriously endeavoured to traduce. Humboldt's critical investigations have established beyond a doubt that Columbus had commenced his great work of discovery at the suggestions of his own mind and opinions; that he made use of traditions and suppositions of former ages till they became his independent opinion, and the spring to bold adventure and unfettered action.

In the year 1840, Humboldt published *Academic Dissertations* on his ascent of the Chimborazo, and on the mean elevation of the continent; also a critical memoir on some important positions in Guiana; besides this he re-commenced the work which had been interrupted in 1828—his universal physical description of the world, under the title, "*Kosmos*," which he now continued on a more extended plan, and was also superintending the publication of his brother's posthumous works, being at the same time an active member of the academic committee for the publication of the works of Frederic the Great. In January, 1842, the king summoned him from these labours by honouring him with the command to accompany the court to England, for the christening of the Prince of Wales. Although Humboldt was honoured by this distinction, and by the respect paid him by the English court, he also did honour to the king's journey by his personality, and the intelligence of England worshipped him wherever he showed himself.

In May of the year 1842, Humboldt received another royal favour on the 102nd anniversary of the ascension of Frederic the Great. About this time Frederic William IV. instituted a peace class of the order of Merit, founded by Frederic the Great only as a military order,* which was henceforward to decorate

* Under Frederic the Great, only five non-military persons were admitted to the order, namely, Voltaire, Maupertius, Algarotti, the

the greatest scholars and artists of the world as a symbol of royal favour. Thirty knights were entitled to a vote to choose such individuals among the German nation whom they considered as meriting this distinction, and it was also decreed that the number should be limited to thirty German scholars and artists. Besides these thirty Germans the order could be conferred on distinguished foreigners. Alexander von Humboldt, as the greatest living scholar who united the attainments of a whole academy in himself, was appointed grand chancellor of the order.

We have not, in this biographical sketch, spoken much of the personal decorations conferred on Humboldt, as every reader would think it self-understood that a man who had attained the highest summit of scientific fame, and who stood in the most intimate relation to the princes of all countries, would not be wanting in exterior tokens of favour and merit. And he not only received numerous honourable distinctions from princes and from learned associations, but he received them very early in life. We have mentioned his elevation to a Prussian acting privy councillor, with the title "excellency," and need only add that not only all the great academies of science and art, all the learned societies of the world, considered it an honour to have Humboldt as member, but that all the princes of all countries testified their esteem for him, and their consideration for science, by conferring their highest honours upon him. But these exterior forms can add nothing to Humboldt's greatness, for the glory of his mind and his fame outshines all the stars of merit, which are indeed very rarely seen on his breast.

Humboldt now lives wherever his royal friend lives. There are apartments for him in Berlin, Potsdam, in

minister Von Marschall, and a councillor Eckwricht in Silesia. After 1815, it was scarcely ever conferred by Frederic William III., because there is no opportunity for military distinctions in peace; and the last member on whom it was conferred was the Archduke Frederic of Austria, for his exploits before Acre, 1841.

all the royal palaces, and not a day passes that he does not see the king. In spite of his eighty-one years he works unweariedly in those hours which are not occupied by the court; he is active and punctual in his immense correspondence, and answers every letter of the humblest scholar with the most amiable affability. The inhabitants of Berlin and Potsdam all know him personally, and show him as much honour as they show the king. With a slow but firm step, a thoughtful head, rather bent forward, whose features are benevolent with a dignified expression of noble calmness, either looking down, or politely responding to the greetings of the passers by with kindness, and without pride; in a simple dress, frequently holding a pamphlet in his hand, resting on his back, so he wanders frequently through the streets of Berlin and Potsdam, alone and unostentatiously, a noble picture of a blade of wheat bending beneath the weight of its numerous rich golden ears. Wherever he appears he is received by tokens of universal esteem, the passers-by timidly step aside for fear of disturbing him in his thoughts; even the working man looks respectfully after him, and says to his neighbour, "there goes Humboldt." And whoever has had the happiness of conversing with him, never forgets the force of his lucid, simple, natural, and unaffected conversation, for in everything he says, depth and learning, clearness and unbounded knowledge, are revealed without any of the pride of learning, the stiff pedantry and preciseness of many German men of science. Humboldt has evidently been educated in the highest society; his manner is dignified, open, unaffected, and frank; he has lived with all nations, and adopted and united in himself the advantages of all.

With the name Humboldt, a whole world seems to rise before the mind's eye. We involuntarily see him standing on the highest points of the Cordilleras or the Altai, and looking down into the realms of nature, gazing into the depths of the ocean and into the boundless expanse of heaven like an inspired prophet.

And in his activity he seems like a sun of science, which sheds its rays over the whole earth, and excites, fertilises, and inspires science everywhere. He is in constant correspondence and zealous communication with all ministries which take any interest for the advancement of science, and with all learned academies. The fortunate accident of his birth, as a son of a wealthy and aristocratic family, his influential position at the court of an intelligent king, are very important means in his power, for every government is ready to serve him when it would perhaps have scarcely listened to a man of mind born in a humbler sphere and a less favourable position. None but Humboldt could have encompassed the earth with a circle of magnetic observatories such as were erected at his instance. To assist him in his investigations on the deviations of the magnet was a point of honour for the governments, and his wish sufficed to induce them to raise a series of stations for magnetic observations over the entire middle of the old continent from Pekin to Lissabon, which have been increased and extended since 1840 over the southern hemisphere, nearly to the extreme limits of the southern polar circle.

If we now glance over the life of this distinguished man, evidently elected by Providence as the especial medium of scientific revelation, then his intellectual individuality, as we sketched it in the introduction to this biography, will be more plainly before the reader. We will endeavour again to paint the portrait in its universal features. He was pre-eminent in so many branches of science for infusing intelligibility and lucidity into them, that one scarcely knows where to commence. But it may be said of him in general that he was the first to arrange and sift the chaos of isolated experiences of the former and of contemporary ages, to place everything in its proper department, to make it a comprehensible member of collective nature. The anomalous was made conformable to rules by his critical penetration, isolated facts

were incorporated into their relative groups, and the entire system of nature in its great natural laws was revealed to the inquiring human mind. Thus he became, as we have shown, the founder of comparative geography; he was the founder of a new theory of geology, and in a work prepared by him and his friend Leopold von Buch, he referred to the influence of the volcanic agency on the formation and continual alterations of the earth, rejecting his teacher (Werner's) theory of Neptunismus,* and acquiring new facts on volcanic agency; he was the founder of botanical geography, a new theory on the laws of the distribution of plants; he was the discoverer of a new world with new phenomena, new manners, new languages, and traditional remains of an entirely unimagined antiquity; he was the reformer and teacher of a new cartography for accurate delineation and supervisory description of large territories; he was the representative of a new mode of treating natural science in general, which he created himself, and which has been developed by the tendencies of the present age. This system, striving for universality, studies the connexion of the various fields of nature in its most secret recesses and with pure experience, without speculative deduction or explanation, only seeks facts, arranges, combines, and explores the intimate connexion of cause and effect as a means for the comprehension of natural laws. He was the founder of the new school which combines physical science with the history of humanity, and which has been the most prolific in unexpected results. This mathematically "EXACT" method was originated by Humboldt; it has been adopted by the greatest scholars, but it has also unfortunately led to the most trivial empiricism with those who only know Humboldt's method, but are incapable of imitating his mental aptitude for combination and his intuitive power.

* Explanation of the formation of the world by the effects and deposits of the waters of the earth.

And if we consider his style, the manner and form of his literary descriptions, the artistic side of the author, we shall here again find the truth of the well-known proverb: "*le style c'est l'homme.*"

Two nations, the German and the French, claim Humboldt as one of their classical authors, for he is equally great in the simple elegance and fluency of literary description in both languages. Although he often treats of subjects dry in themselves, and which, by a rigid enumeration of self-describing facts, seem little adapted for an elegant diction, his writings are all distinguished by a style which is as easy, fluent, and lucid in its simplicity and unaffected elegance, as it is lively, eloquent, and elevated whenever the subject permits it. His scientific communications bear the characteristic of clearness, and of being founded on ample proofs; his descriptions of nature, without being overburdened with words, seem like living landscapes painted with accurate fidelity, and their interest and charm are increased by being interspersed with genial interpretations of nature and its grand phenomena, while the narrative portion of his travelling experience is often given with a witty, cheerful, even humorous, freshness of conception and of judgment, and his simple sketches of scenes from natural or national life often attain to poetical elevation.

He has peculiarly the talent of describing the splendour of natural scenery by undeviating fidelity and absence of all merely rhetorical ornamentation, whether these descriptions paint the calm or the stormy ocean, the savannas of Central America, the giant forests of the tropics, the deserts and precipices of the Peruvian and Mexican mountains, or the unvegetating snow summits and craters of volcanos. Wherever he describes a single object, any phenomenon or discovery, he always bears in mind its relation to nature in general, short and concisely, without degenerating into poetical exaggeration; he can keep alive our admiration for the grandness of

nature, whether he describes a majestic or a terrible landscape, a mineral, a plant, or an organic law. By this unadulterated faithfulness of description, this simple painting of subjects just as nature reveals them, and as the mind and heart are normally moved by them without intermixture of morbid sentimentality, or subjective peculiarities—by this, Humboldt enchains the reader, and gives him such a conception of the tropics, that he forgets whether he has seen these scenes himself, or has only made their acquaintance through a written delineation.

Humboldt is the representative of pure objectiveness and reflectiveness; like a concave mirror, he reflects all the received rays in the purest light, but having a collective ideal focus in the back-ground.

In his work on the journey to the equinoctial regions, he made use of a species of description which, if not quite new, was employed with very happy effect by him, and perfected to a high degree. This method, which has since been frequently adopted, has the peculiarity that he frequently pauses in the narration of his adventures and journeys to make observations, and give explanations on what has passed, and prepare the reader for the better comprehension of what is to follow by communicating general facts, and by remarks on the general aspect of the coming events on these stations in the journey. By this method of description such travels, especially when they refer to the personal adventures and accidents of journey, lose that uniformity, subjectiveness, and monotony which is but little removed from tediousness. Humboldt never obtrudes his individuality; his aim is always to give a scientific character to the narration in which he plays a prominent part, and it must be especially mentioned that he always rigidly distinguishes and explains what is the result of his own observation, and what he has adapted from other sources, or made use of as auxiliary explanations. This characteristic is quite in unison with his modesty and scientific consciousness, which makes him sift and arrange his facts

and his observations, in order to classify them as strictly as he respects the scientific acquirements of others, and use them only as an acknowledged loan when this mutual exchange promises any advantage to the interests of science objectively. His reader will perceive in every page of his works that when Humboldt writes, such a mass of scientific material crowds upon his happy memory, that in thinking, he compares, quotes, corrects, confirms, or contradicts. The entire field of science lies open before his mind when he perhaps only intends to communicate one single fact of his experience. Hence it comes that his writings, especially those that are purely scientific and descriptive, have, besides the original by himself, a rich appendix of notes, quotations, comparisons, and references, in all sciences and from all ages, which sometimes surpass the purely descriptive text in force, and adorn it like pearls on the string which connects them. These notes especially force us to admire the unexampled universality and profundity of his erudition and his power of memory.

Humboldt displayed much tact in the composition of his great works. He wrote them originally in the French language, the universally-understood medium of the civilized world, and thus made it possible that they should be available to all nations. Thus the great effect of his writings on the majority of intelligent readers was at once an universal one, equally effectual at the same time with all nations in producing a speedy development of the universally-awakening sense for natural science and comparative studies, and by arousing and increasing an interest for Humboldt's system of scientific observation. His writings have also been frequently translated into other languages—by Wimmer into German, by Williams and Macgillivray into English. Some works were translated into German under Humboldt's superintendence, as, for example, his Asiatic voyage by Mahlmann, and some were popularised and published by extracts. During the last few years he has com-

menced to publish a work great in its plans but not yet completed, a testament, as it were, of his scientific labours of sixty years, a heritage for the world to which we will call especial attention in another chapter.

CHAPTER X.

KOSMOS, AS THE EPILOGUE OF HUMBOLDT'S SCIENTIFIC LIFE.

IN speaking of the lectures on physical geography given by Humboldt in the winter of 1827-28, in the Lecture-room of the University, and in the Large-hall of the Singing Academy of Berlin, we mentioned that he had the intention of publishing these renowned lectures in a work called "Kosmos," but that other occurrences forced him to delay its revision and publication. He considered these lectures, delivered before a large miscellaneously educated public, as an easy conclusive means of proving the good or imperfect connexion of single portions of his theories, and, therefore, he had before coming to Berlin given similar lectures in Paris in the French language. He laid down in unstudied addresses, and without written notes, his conception of science; and how anxious the public were to retain the fugitive words, is evident from the fact that of his capable hearers several took down his lectures, and several prepared and published them by means of notes and an excellent memory. Humboldt did not write down what he had then lectured until 1843 and 1844, but how could he have written the same when in the intervening time the treasures of observation and experience had so considerably increased, and opinions and theories had been developed by more mature consideration? But in order to give unity, spirit, and life to his subsequent descriptions, he started from those lectures and the era of science therein

represented, and developed them from his former themes, on the footing of continual progress. This is the exterior history of that great work, which has appeared in modern times under the title "*Kosmos*."

But this work has also an inner history which reflects the mental development of Humboldt's life. We have called this work a testament, a heritage to the world, and Humboldt himself says of it that he offers a work to the German public in the evening of his active life, the plan for which has been present to his soul in faint outline for nearly half a century.

He recognised the importance of his scientific testament, for he knew that he must conclude the results of his life. He often deemed the undertaking impracticable, and yet, urged by the collective fruits of his life, and by the feeling that he owed the world a general resumé of his researches, extended over a period of fifty years, he always returned to this work of making the treasures of his eminent mind the common property of his German fatherland, and to delegate it to them as a valuable inheritance. This feeling is expressed by the fact that he wrote the work in the German language. The great purpose of his life was to comprehend all matter in its general connexion and entire nature as a unity, moved and impregnated by inner powers. By the investigation of a single fact in natural science, the knowledge of other single facts were revealed to him, for the different domains of science fertilized each other; he explained the complicated causes of the varied forms of existence, and traced them to the prevailing laws of the unity of nature.

This great aim of his life was especially advanced by the happiest social circumstances which are rarely offered to a scientific traveller; for he not only found the opportunity of seeing coast lands, like most circumnavigators, but also of penetrating far into interior plains of two world-quarters, where he investigated the most prominent contrasts of nature,—the

South American tropics and the steppes of Northern Asia,—and was thereby led to comparisons and general observations, and thus became qualified to conceive heaven and earth in its entirety as a physical unity.

His immense scientific attainments were at the service of all men of science. Humboldt not only imparted them freely, but arranged them comprehensively in his works. But the summary of his knowledge, the fruit of his life, he dedicated to his fatherland, and for this purpose he started from the point where he had first been a public instructor of the people, from his lectures in Berlin, which commenced what *Kosmos* was intended to complete. But the lectures and *Kosmos* have nothing in common except the order of subjects; for since 1827 science has necessarily taken another form in consequence of the progressive explanation of natural phenomena and physical laws, in consequence of the increasing perfection of experimental instruments and the consequent enlargement of the perceptive limits; the mysterious had been explained, the impenetrable had been cleared, and the mind itself had risen to a higher standard by the simultaneous action of new views and experiences. Humboldt felt, more than any one, the great difficulty of producing a work which might be a faithful, enduringly correct picture of an eternally progressive world; for the higher the student attains in the progress of the human mind, the more the horizon extends with new fields for observation. Works on natural science become old in time and are forgotten; but Humboldt, inspired by the high dignity of natural science, and by an ardent love for it, was not discouraged when he was reminded of a future perfection of human knowledge, for he knew that he had been instrumental in raising the firm, indestructible foundations for many of its most important branches. And if even what now appears as a single phenomenon be in future classified under a general law, if new powers are disco-

vered or explained, if apparently simple matter be increased in number or recognised as being compound, Humboldt's researches will nevertheless be important to the most remote ages, for they show us nature in its animation, and point to the eternally immutable and regular amid physical mutability.

The order in which the lectures were given is adhered to in *Kosmos*. We have stated that the course consisted of sixty-one free addresses, which were subdivided as follows :—

Five lectures treated of the nature and limits of physical geography, and included a general sketch of nature.

Three were devoted to a history of the science of the world.

Two to inducements to a study of natural science.

Sixteen to the Heavens.

Five to the form, density, latent heat, and magnetic power of the earth, and to the polar light.

Four were on the nature of the firm earth crust, on hot springs, earthquakes, and volcanos.

Two on mountains, and the type of their formation.

Two on the form of the earth's surface, on the connexion of the continents, and the elevation of the soil over ravines.

Three on the sea as a globular fluid surrounding the earth.

Ten on the atmosphere as an elastic fluid surrounding the earth, and on the distribution of heat.

One on the geographic distribution of organized matter in general.

Three on the geography of plants.

Three on the geography of animals.

Two on the races of man.

This will serve as a review of the general contents of *Kosmos*. A world is revealed to our senses and our intelligence in this work of Humboldt; the entire world as a scientific, strictly objective, but at the same time truly animated picture of infinite variety

and sublimest unity, of constant motion, and of the immutable repose of eternal laws. He first brings us to the right point of view for the contemplation of this great picture, by explaining the variety of its pleasures,—he facilitates the comprehension of natural laws by his experience, and then unveils the great picture in perspective, commencing with the most distant nebulae and revolving stars, and proceeding gradually to the earth, its geography, its plants, its animals, and its human inhabitants. Herein he shows the intimate connexion of general truths and special developments, with that geniality of scientific treatment in the choice of matter, and in the form and style of composition, which is so peculiarly his own; and then follow the incentives to natural studies, among which he enumerates, especially, lively descriptions of natural scenery, landscape painting, intercourse with plants, and their taste-elevating cultivation in conservatories.

The great truths explained in *Kosmos* are a legacy to the German nation, and therefore this biographical monument is the most fitting place for explaining the basis of this scientific testament to the people in intelligible language.

Nature, as Humboldt represents it, is as capable of affording the noblest pleasures as it is of inciting to the highest intellectual development, and to an insight into the profounder duties of humanity. In any intercourse with nature, as a well-understood and explained world of phenomena, where every form and motion are referred to a well-considered law, man must become nobler and more self-conscious; but it is not indifferent by what means man attains to a higher enjoyment of nature. Humboldt says this in the introduction to *Kosmos*, and reveals the individuality of his own nature. He thinks that the lowest kind of appreciation of nature is independent of an insight into the effects of its powers, but almost independent likewise of the peculiar characteristics of the surrounding scenery. He says:—

“Where uniform social plants cover the plain, and the eye rests on the boundless distance, where the ocean’s waves playfully wash the shores and thread their way through elms or sea-weed, the feeling for free nature penetrates us everywhere, and the inward presentiment of its existence by eternal laws.”

Whoever has felt that a secret power exists in these emotions, which refreshes, exhilarates, and strengthens the wearied spirit, or soothes the afflicted heart, and the storm of passion, will admire Humboldt’s clearness of perception, before which nature revealed herself to him. The solemn and serious feeling which inspires us at such moments rests on the almost unconscious sense of a higher law and natural legality; it is universality which stands before our own limitation from which we would escape; it is an enjoyment of nature accorded to all men, intelligent and ignorant, on all portions of the world filled with animal and vegetable life.

But Humboldt perceives another higher enjoyment, likewise appreciated by the feelings, in the circumstance that man is moved not only by a communion with nature, but by the special character of a locality. He says: “Such impressions are more vivid and more decided, and therefore fitted for peculiar emotions. Sometimes our feelings are excited by the grandeur of nature in the wild struggle of conflicting elements, or we are impressed by the desolation of immeasurable prairies and steppes, pictures of the immutable and rigid; sometimes we are enchanted by a more pleasing image, the sight of a cultivated field, the first settlement of man, surrounded by rocks on the brink of the bubbling mountain rivulet.”

These two phases of an enjoyment of nature, especially the latter individual one, where the positive circle of ideas and feelings which are excited by nature prove its force and stability, are felt by Humboldt in a truly poetic manner, as we shall often find in his works. Wherever he indulges in recollections, his emotions wander back to the impressions of nature—

he thinks of the ocean in mild tropical nights, when the calm starlight, not sparkling in those regions, pours over its expanse of waves; he thinks of the wooded vales of the Cordilleras, where strong palm trees, like pillars, break through the dark foliage; he thinks of the Peak of Teneriffe, where layers of clouds separate the cone from the lower earth, and a sudden rent in the clouds opens a view for the spectator on high over the vine-covered hills of Orotava and the gardens on the coast. These great scenes of nature exercise their influence by the individual character of the landscape, and not by the calm, creative power of still life, for even the terrible, the infinite, and incomprehensible, are a source of enjoyment here. The imagination endeavours creatively to supply what remains veiled from the senses, and we erroneously believe to receive from the material world what our feelings have introduced into it. Humboldt says: "When after a long voyage far from home we for the first time set foot in a tropical country, we rejoice to see on the steep precipices the same rocky formation which we have quitted on European soil, and whose universality seems to prove that the earth crust was formed independently of the exterior influences of the present climatic relations; but this well-known earth is decked with the forms of a foreign flora. Then the wonderfully adaptive power of the human mind reveals itself to the inhabitants of the northern zone, surrounded by unaccustomed plants, by the overpowering grandeur of the tropical organizations, and by an exotic nature. We seem so familiar with all organized matter, that if it even at first seems as if our native landscape, like a native dialect, would seem more familiar and agreeable than this foreign, voluptuous fertility, we are very soon at home in the palm climate of the torrid zone. By the mysterious connexion of all organic matter (and the feeling for the necessity of this connexion is involuntarily latent within us), those exotic forms seem to our phantasy as the ennobled and more elevated forms of the same objects which

surrounded us in youth. Thus obscure feelings, the connexion of material observations, and afterwards the active exercise of reflection, lead us to the knowledge which penetrates through all grades of civilization, that a common, ordained, and therefore eternal unity prevails over all nature."

But another and a higher enjoyment of nature is that where *ideas* are united with the excitement of the feelings,—where the regular and immutable laws of nature are not only felt, but acknowledged by the reasoning power. Humboldt not only did much for the development of this feeling, but has endeavoured to excite men to it, and educate them for it, by his writings. For an appreciation of nature in its regularity is a duty of civilization; it is a human, ennobling enjoyment, for which a want is felt by the increasing education of our age, and needs a greater development. In spite of a generally high intelligence, the grossest ignorance on natural subjects still prevails even in the higher classes, and an appreciation of nature rarely rises above the before-mentioned lower grades of a simple emotion. But in the present age, where all classes strive to enrich their life by a greater abundance of ideas, a better insight into nature cannot fail; and therefore Humboldt's "Kosmos" is important for the German nation, as this work professes to be an educational medium to develop in the people the highest phase of an appreciation of nature—the knowledge of nature in her regularity and legitimacy, besides its individual influence on the feelings.

It is sometimes asserted that nature loses her charms, when we inquire into its secret powers and its constitution, that it loses its mysterious halo and exalted elevation; but, even if the play of imagination is circumscribed, and the charm of the mystery dissolved, if, even, an erring philosopher alleges ignorance of natural laws to be the only source of admiration and elevation; an insight into the intercoherence of all natural objects, when it is attained and practised in Humboldt's manner, and is not merely a crude col-

lection of infinite materials, induces that highest phase of natural enjoyment, worthy of a reflecting man; it enlarges and ennobles mind and heart, it awakes joys of a higher intelligence, and leads to a comprehension of the divine. Every law of nature points to a higher, unrevealed one; with increasing knowledge the sense of infinity increases in the intelligent mind, and Humboldt says, truly, the assertion that natural studies destroy natural pleasures, can only proceed from ignorance, or a sentimental obstruction of the mind. He adds, indeed, that powers, in the real sense of the word, only then work mysteriously in the obscurity of a mysterious force, when their working lies beyond the reach of universally known conditions of nature. The astronomer, who determines the diameter of a planet with the heliometer, or the Iceland crystal, who measures for years the meridian height of the same star, who discovers telescopic comets between crowds of nebulae, does not, fortunately for the scientific result of his labours, feel his imagination excited any more than the descriptive botanist, while he counts the petals of the calyx, or the stamina of a flower, or investigates the simple or double, the free or the annularly complicated teeth of the seed capsule. But the measuring and discovery of numerical proportions, the careful observation of single parts, prepares for a better knowledge of nature in its entirety, and of the organic laws. The heavens and the fertile covering of earth, must, certainly, seem a more magnificent sight to the natural philosopher, who, like Thomas Young, Arago, and Fresnel, measures the irregular long streams of light, diminishing or increasing in the distance; to the astronomer, who, by means of a space-annihilating telescope, examines the moons of Uranus at the extremity of our solar system, or, like Herschel, South, and Struve, dissolves masses of light into double stars; or, to the initiated eye of the botanist, who recognises the circulation of the sap seen in the Charaplants, in nearly all vegetable cellular forms, and who perceives the unity of

form, that is, the coherence of forms, subdivided into races and families—than to the observer whose sense for nature has not been refined by an insight into its laws.

But, to attain to this, men must make themselves familiar with the universal views of creation; and this is, indeed, becoming an undeniable want for the people, which strives after educational means for the extension of intelligence and learning. Humboldt endeavours to inculcate such general views which help to explain the single and special laws of nature, in this, his legacy to the German people; and, thereby expands the mental life of the nation, by bringing it from its ignorance into connexion with the entire world, by letting it surmise the coherence in the natural phenomena from these general views, and urges on to varied study.

Partly with the view of calling attention to these works of the great philosopher, and of assisting in advancing his purpose in those classes of the people where "Kosmos" still requires a popular interpretation, partly, also, to present, at the close of this biographic sketch, an intellectual portrait of Humboldt, drawn by his own hand, in the general character of the truths acquired by him, by a contemplative observation of natural phenomena; we will now endeavour to give a very brief summary of "Kosmos," which may be generally comprehensible. We address ourselves especially to those of whom Humboldt says: "Whomsoever his position permits, sometimes to rise above the narrow boundaries of civic life, blushing that he has been so long a stranger to nature, and has passed by her without emotion, will find one of the noblest enjoyments which a developed reason can afford to man in the contemplation of the great and unbounded life of nature. The study of natural sciences will awaken faculties in him which have long slumbered; he enters into a closer connexion with the material world, without becoming insensible to the industrial progress and intellectual development of humanity."

We will first follow Humboldt in the general sketch of nature, where he gives us an abstract of natural phenomena. With the word "Kosmos," he includes the All, the universe with its regulations and its laws. Beginning with the most distant nebulae of the depths of space, he descends gradually to the life of our little earth. Humboldt has studied this universe for half a century, with penetrating thoughtfulness, and clear mind, and he paints faithfully from experience. If we take the universe according to his spirited description, to be filled with a world pervading ether, a vapour-like mass; we see it first condensed into the nebulae of the sky, and then condensed still more into the comets, but still penetrable by light, until in the planets, all grades of density, from that of antimony to that of honey, water and firwood have been passed through, one planet showing the denser, the other the less solid matter. Humboldt describes these formations in the space filled by ether as balliform matter.

The stranger to astronomic science will be surprised that Humboldt has ventured to determine the locality of our solar system, and of the lens-shaped space filled by the collected stellar bodies in their course round the sun; but this question has long since been solved by astronomy, with measurements of the stars, and observations of their course, and of their variations. It has further been discovered that the self-illuminated suns, falsely called fixed stars, also change their position; that, although our solar system, or, as Humboldt expresses himself, our world-island, only consists of one central body, which we call sun, and of planets, comets, and asteroids, yet other solar systems have two or more of such self-luminous bodies, which has been proved by the discovery of the so-called double stars, and that these several suns in their turn circulate round their common centre, lying in space therefore not indicated by any visible body. Our solar system includes, according to Humboldt, besides the chief planets, moons, countless comets (of which,

three, with almost a planetary formation, do not move out of the planetary course, while the others float far into space), a vaporous, rotatory ring, which seems to be situated between Venus and Mars, to cross the earth's course, and to appear to us in a pyramidical form as the zodiacal light; also a host of asteroids, whose course crosses that of the earth, or approaches very near it, and then, attracted by the earth, fall down as meteors, or star-shoots.

Humboldt has always observed the comets with particular interest, and endeavoured better to comprehend the constitution and qualities of these strange bodies. The old astronomer, Kepler, once said that there were more comets in space than fish in the sea; and according to modern astronomy, the course of scarcely 150 has been computed.

It was to be expected that Humboldt would not pass over in a superficial manner these remarkable bodies, which, with their small bulk, often scarcely $\frac{1}{50000}$ th part of the earth, occupy, with their tail, sometimes millions of miles. Their form is varied; sometimes only a cloud of light; a round, brilliant vapour, with a denser centre, sometimes having head, centre, and tail; sometimes changing as if it were engaged in a process of formation. Humboldt endeavours, scientifically, to allay the fear that a comet might some time come into contact with the earth. As these tranquillising reasons, which are founded on calculations of probability, can only influence reflection and reason, and not a desponding mood, or the imagination, science now has destroyed fears which it formerly excited. It is on record that returning comets have approached very near the earth, like the Lexall-Burckhardt comet of 1770, which passed within six moons' distance of the earth, and in 1767 and 1779 passed through the system of the four moons of Jupiter, without causing the least disturbance in their relation to each other, or to Jupiter. But from the scientific facts that Jupiter and Saturn may cause considerable diversity of a comet from its course

by their attractive power, which is commensurate with their bulk; that there are comets returning in a very short time, that Biela's comet traverses the earth's course, and that comets are very different in their individuality; many causes might arise which would make apparently harmless bodies dangerous ones, and which might scientifically confirm the indefinite fears of former centuries.

Our readers will remember that Humboldt observed remarkable showers of shooting stars on his journey to America. In "*Kosmos*," he gives his accounts of this subject, which he always treated with great minuteness. He calls the star-shoots, and the meteors, and fire-balls of the same class, the smallest of all asteroids, and includes them in the number of bodies revolving round the sun; he considers them, with great apparent probability, as little bodies moving with planetary speed, and revolving round the sun in space according to the laws of universal gravity in conic sections, elliptical and hyperbolic. When these masses meet the earth, in their course round the sun, and attracted by it, become luminous on the verge of our atmosphere, they often let fall a more or less hot, stony matter, covered with a black, lustrous coating. These showers of star-shoots have been observed to be periodical (by Humboldt, 1799, in Cumana, and 1833 and 1834, in North America, besides recurring annually in November, from the 12th to the 14th, and in August, from the 9th to the 14th, and known as November shoots, or St. Laurentius showers), and Humboldt found them brighter, more coloured, leaving a longer, brighter trace, in the tropics, than in the temperate and cold zones, on account of the greater transparency of the hot atmosphere. Humboldt considers the connexion of the meteor stones with the fire-balls as proved; namely, that the former—often seven feet long—fall from the latter, and often strike fifteen feet into the earth, and the intimate resemblance between fire-balls and star-shoots seems to him no longer doubtful, from evident facts. Not so evident is the constitution of these

bodies, their plastic power, their physico-chemical process, whether the parts which form the dense mass of a meteor stone exist separately as vapour, and condense by illumination. What passes in the black cloud of meteors in which it thunders for some moments before the stones fall, whether from the little star-shoots something solid falls, or only a vaporous iron and nickel, containing meteor dust; all this Humboldt has hitherto not been able to discover. The motion, direction, and vicinity of these meteoric phenomena, seem to prove that they come from space into our atmosphere. They always proceed from one region of the heavens, independent of the revolution of the earth, their relative speed is four and a half to nine miles in a second, which is the speed of the planets, the beginning and termination of their visibility vary between four and thirty-five miles. Humboldt believes that the meteoric streams which fall periodically, especially every half year, in August and November, and which are composed of myriads of minute bodies, cross the course of our earth, like the Biela comet, and form a close revolving ring, in which the asteroids are so unequally dispersed that there are few dense and many loose groups; the earth then periodically comes in contact with these dense groups, and this is the time of the meteor falls.

As we have before mentioned, Humboldt adds another circle to our solar system, besides the comets and asteroids; and this he calls the ring of the zodiac, and ascribes to it the phenomena of the zodiacal light. In describing it, he remembers his visit to the "palm-zone," where he has often seen the zodiacal light rising pyramidically, and illuminating a portion of the equally long tropical nights, often shining more brilliantly than the milky way in the sign Sagittarius, as well in the thin dry atmosphere of the tops of the Andes, at an elevation of from 12 to 14,000 feet, as in the great prairies of Venezuela, on the sea shore, or beneath the ever clear sky of Cumana. This pheno-

menon of the zodiacal light, is described in one part of Humboldt's diary, written on the voyage from Lima to the western coasts of Mexico. He says: "For three or four nights, between ten and fourteen degrees northern latitude, I saw the zodiacal light in such brilliancy as I have never observed before. Judging by the brilliancy of the stars and nebulae, the transparency of the atmosphere in this part of the South Sea is very great. From 14th to the 19th of March, no trace of the zodiacal light was visible three quarters of an hour after the sun's disk had set in the sea, although it was completely dark. An hour after sunset, it suddenly became visible in great splendour, between Aldebaran* and the Pleiades; narrow, long drawn clouds were dispersed over the lovely blue near the horizon, like before a yellow carpet; the upper ones from time to time played into bright colours, as if it were a second sunset. In this region of the firmament, the brightness is increased like at the first quarter of the moon. About ten o'clock, the zodiacal light was generally already very faint, and at midnight only a slight trace was visible." In our dull, so called temperate, northern zone, the zodiacal light is plainly visible only in the commencement of spring, after twilight, over the western horizon, and toward the end of autumn, before the morning twilight, over the eastern horizon.

We now come to Humboldt's explanation of this extraordinary natural phenomenon, which did not excite the attention of natural philosophers and astronomers, until the middle of the seventeenth century, and whose views on the subject are as variously different as imperfect. Humboldt refutes the hitherto accepted opinion, that the luminous solar atmosphere itself causes the zodiacal light, but considers it probable that its material cause may be the existence of a very much flattened ring, formed of vaporous matter, which revolves in space between the courses of Venus

* The beautiful red star in the sign of Taurus, the bull.

and Mars. He can, however, give no explanation of the material dimensions of this ring, of its enlargement by the exhalations from the tails of the many myriads of comets which approach the sun; he can give no positive account of the strange variations in its extent, which sometimes seems to stretch far beyond the course of our earth, nor of its supposed connexion with the dense ether surrounding the sun. He presumes that the aërious parts of this ring which, according to planetary laws, revolve round the sun, are either self-luminous, or only illuminated by the sun. That bodies may exist in a self-luminous state, Humboldt proves by the fact that, in the year 1743, a terrestrial vapouring, during the new moon time, was so phosphorescent in the night, that objects could be distinguished by its light at a distance of 600 feet. In the year 1831 also, the nights were so extraordinarily light, that in northern Germany, small print could be read at midnight; and at the same time the morning and evening twilight were unusually lengthened. When Humboldt was living in the American tropics, he often wondered at the varying degree of illumination in the zodiacal light, especially when, for months he was spending the nights in the open air, in the prairies, and on the river shores. At that time, he often perceived vibrations and scintillations, and he believes that these are especially dependent on the evolution of light on the boundaries of our terrestrial atmosphere.

We have hesitatingly followed Humboldt so far into his higher phase of natural appreciation, in which he not only feels the regularity of nature in the soul, but perceives and acknowledges it. We have followed his traces at a great distance, because we feared otherwise to neglect our purpose of a general survey in the profoundness of his scientific reasonings. But in his surveys of the starred sky, he refers to the picturesque gracefulness of the firmament, and calls his readers' attention to the position of the constellations, and their dependence on the eternal regular courses and

changes of the stars. What seems to us immutability in the sky, is only apparent, caused by the incalculable distance and changes operating gradually to our limited senses, during millenniums; on every spot of the vault of heaven the same motion exists as on earth, for in this motion the whole universe has its existence.

Humboldt had most efficient and celebrated co-labourers on the field of astronomy, and during his life an immense progress in this science has taken place, as well as the improvement and perfection of the necessary instruments. Humboldt was able to follow this development of astronomical science of the last sixty years; his position secured him the intimacy of all great astronomers; he could see from the observatories, what thousands possessing high attainments only know from description; he has personally watched all discoveries made respecting the heavens and the earth, for more than half a century. Hence proceeds his knowledge of the universe, his partiality for the recurrence of the self-discovered laws of this earth in space, his ingenious explanation of hitherto unintelligible facts.

The sky exercises a mysterious charm of attraction over every one—wherever one may look with the strongest, space-annihilating telescopes, one finds stars or luminous nebulae, of which many have already been resolved into stars; but there are also starless regions of which Herschel once said that devastations had there already taken place by time. Humboldt calls them chasms in the sky, and thinks they are views into an infinite depth of space at whose background another starry expanse lies, whose light cannot reach us. This view is almost incomprehensible to the senses, when it is known that light travels with the speed of 41,518 geographical miles in a second, and that nevertheless the light of well-known and therefore relatively very near stars travels twelve years to reach us, and that Herschel, through his famed telescope, discovered luminous nebulae whose

rays, according to his calculations, must have travelled nearly two millions of years to reach the earth. And if we now, as astronomers frequently observe, hear of a star which suddenly loses its light, or increases it considerably, these are, as Humboldt says, events which, in their historical reality, belong to other ages than those in which we perceive them by the changes in their rays. They are voices of the past; an hour for us is for a ray of light a space of 148 millions of miles, and we may possibly be admiring a star whose last rays are now on the way to us, while the star itself may have ceased to exist ages ago.

Reflections such as these are induced by contemplating the stars with Humboldt; we learn to know, in the light of distant worlds, the oldest perceptible sign of the existence of matter.

After this introduction, the ingenuous naturalist brings us back to the real field of his experience, the earth. Considering first its form, its mean density, its warmth, and electro-magnetic power, he acknowledges, from the relations of the earth and its powers, working from the centre outwards, a universal natural force—namely, subterranean heat—which produces earthquakes, hot springs and volcanic phenomena. The surface of the earth disturbed, raised, or broken through by this force, has in the course of centuries formed the relation of the land to the water, and the form of the ocean—temporary or permanent clefts into these unknown depths serve to connect this interior of the earth with the air; fiery springs of molten masses rise gradually or suddenly from the unexplored abysses and petrify into lava, and while the ancient rocks are changed by the influence of the waters, new ones are formed before our eyes; the waters reveal remains of plants and animals, precipitations, aggregates, crushed rocks mixed with the osticular ashes of an extinct animal creation. Humboldt introduced a scientific knowledge into this varied scene by thoughtful comparisons of the present with the past, of the analogous and the dissimilar, by a combination

of real phenomena and ideal views, reflected and mirrored in the entirety of nature ; he brings darkly-surmised truths on the self-discovered basis of geognosy. While we know more of the interior (the weight, volume, and density,) than the exterior of other planets, we had studied only the surface of the earth, and Humboldt was the first to open the creative laboratory of the interior of the earth to the investigations of science. By means of natural fissures, shafts, and mines, we know the thickness of the superficial strata of the earth, but the greatest perpendicular depth which has yet been reached does not exceed 2000 feet, that is to say, only about one-ten-thousandth part of the semi-diameter of the earth. The masses which the volcanos eject, and which, for the most part, resemble the superficial rock, must, without doubt, come from sixty times greater depths than those which have hitherto been explored by man. Some sinkings prove that coal-beds, with their antediluvian remains, lie (for instance, in Belgium) 5000 or 6000 feet below the present level of the ocean, and that mountain limestone has probably double that depth. Add to this the mountain tops as the most elevated portion of the surface, and we have a difference of about 37,000 feet, or nearly $\frac{1}{54}$ of the semi-diameter of the earth.

No more than this is known of the thickness of the earth ; and the bottom of the ocean, felt at some spots (but frequently not fathomable with a line 25,400 feet long) is perfectly unknown. Hence the mass of the whole planet and its mean density, can only be deduced from comparison of the upper attainable portions. Nothing which lies below the above-named depth has been examined. Nothing is known of the depths where rocks are still fluid, of the cavities filled with elastic vapours, of the condition of the fluids under the pressure of confinement, of the law of the increase of density, from the peripherium to the centre.

Humboldt acknowledges all this, and yet has given

us a science of the earth which points out the right way for a future perfect knowledge, and gives the means for a general explanation of the law which may lead to analogous conclusions on their as yet undiscovered causes. His observation of the warmth of the earth increasing with its depth, and the opposite effect of the centre towards the surface, brings him to an explanation of volcanos as the causes of the form of the earth's surface, some parts of which are raised to the regions of eternal snow, while some are split by rising vapour or burning fluids. Continent and sea interchange, and the atmosphere—the air ocean, as Humboldt calls it—covers both.

The distribution of land and water, the form of the surface, the direction of the isothermic lines, influence, as Humboldt shows, the geographical distribution of plants and animals on our planet, but the different characteristics of the human races, and their distribution over the earth, are entirely independent of these conditions of nature.

Humboldt introduces into all these branches of science that unity of observation which proceeds from an arrangement of facts according to their natural relations. It has never been his purpose tabularly to arrange isolated experiences; his descriptions begin with the form and bulk of the earth, but he did not draw his history of their origin only from the examination of their mineralogic qualities, of petrifications and crystallizations, but he found the history of the earth's origin in its geometric form. He knew that an elliptical spheroid revolving on its axis proves a former soft and fluid body, that therefore the earth once was in a fluid and afterwards a soft state. Humboldt finds this hypothesis proved by the depression at the poles, by the elevation of the surface on the line which the moon describes round the earth, and by the elevation at the equator, the line of the greatest velocity which the soft earth would necessarily take. He calls the level of the ocean the mathematical form of the earth, which it must form as a revolving ball, but accidental

circumstances, the latent forces which caused inequalities and elevations, and formed the solid part of the earth, change the mathematical into a physical form of surface. On the first form, science has made all its graduated measurements of the earth. By eleven such measurements, of which nine were made in this century, while the two others date from the old Peruvian times, and the East Indian astronomy, it has ascertained the incurvations of this surface and the size of the earth, and it has been found by this means that the flattening of the earth spheroid, in which the denseness of the mass must increase towards the centre, is nearly equal to the $\frac{1}{300}$ th part. These measurements for ascertaining the incurvations of the earth's surface have not only been made by graduated measurements, and by observations of the pendulum oscillations and the divergence in the moon's course, by geometrical astronomic means, but also from conclusions on the observed movements, on the powers generated, and by these powers back on their origin.

By these measurements, of which eight were made in Europe, it has been ascertained that the semi-diameter from the centre of the earth to the poles is $2\frac{1}{2}$ geographical miles shorter than the semi-diameter from the centre to the equator; this shows that the surface of the earth from the poles to the equator is swelled by a little more than $4\frac{1}{2}$ times the height of Mont Blanc. The observations made by the oscillations of the pendulum have become of extreme importance for science, and Humboldt justly says: "When Galileo, as a boy, saw during church service that by the duration of the oscillations of the candelabra the entire height of a church dome might be measured, he could not suppose that the pendulum rod would one day be carried from pole to pole to determine the form of the earth, or rather to produce the conviction that the unequal density of the earth strata affects the second pendulum by intricate local influences which reveal themselves similarly on large surfaces."

Thus this time-measuring instrument became as important for the geologist as the lead is to the mariner. Both reveal unseen depths; the variations in the pendulum oscillations even showed whether cavities, or dense basalt masses, exist in the depth of the earth.

When it was at last possible to ascertain the physical form of the earth by means of the moon also, science achieved a great triumph, and Laplace was justified in saying that an astronomer, without leaving his observatory, was not only able to determine the form and size of the earth, but its distance from the sun and moon, results which could, however, not have been achieved without long and laborious expeditions to the most distant portions of both hemispheres. It is a fact that the form of a planet exercises a considerable influence over the movements of other bodies, especially on the never distant moons, and therefore the form of the earth can be ascertained by an accurate knowledge of the moon's movements. And what measurements and pendulums could not establish, was ascertained by these observations of the irregularities of the moon's movements, as not only the flattening of the earth was ascertained by it, but also the proof acquired that the strata of the earth increase in density from the surface towards the centre, and thus, as Humboldt says, the knowledge of exterior forms justifies conclusions on the inner constitution of a body. The actual form of the earth, depending on the inequalities of the hardened surface, is to the regular mathematically precise form as the uneven surface of an agitated sea to the same surface when calm.

But the earth was not only measured, it was also weighed, by means of pendulum and lead. If with these simple instruments the mean density of the earth could be determined (which is much greater than pure water, being 5.44) its mean weight could also be ascertained. Even naturalists have advanced hypotheses on the interior of the earth, whose bulk must increase in density the nearer it approaches the centre; these Humboldt rejects, partly as unfounded,

partly as fabulous. Some calculated how deep in the earth fluid and ærious matter were so condensed by the pressure of superincumbent masses, as to exceed platina in hardness; others represented the interior of the earth as a hollow ball, filled with unwieldy matter and tremendous repulsive power; they even imagined animals and plants as existing on the inner surface of a central globe; two subterranean, revolving planets, Pluto and Proserpine, were said to illuminate this inner space, and near the north-pole the opening which led to this inner earth was supposed to exist. Humboldt relates that Captain Symner, a believer in this theory, repeatedly invited him and Humphrey Davy to make such a subterranean expedition. So powerful, says Humboldt, is the morbid tendency of men to fill unseen spaces with marvellous creations, totally disregarding the contradictory testimony of well-founded facts and universally-acknowledged natural laws.

The result of Humboldt's researches on the interior of the earth is a totally different and a scientific one; his views have become the basis of the present doctrines. Proceeding on the well-founded theory, that the form and density of the present earth must stand in close relation to the forces which prevail throughout it, independent of those which are produced and influenced by the sun—Humboldt arrived at his conclusions. The flattening of the earth, in consequence of the centrifugal power of a rotatory ball, shows that our earth has once been fluid. When the original mass, which Humboldt seems inclined to consider as a vaporous one in an extreme degree of heat, gradually hardened, heat must have been evolved; while the surface cooled, the centre of the earth must have remained fluid and hot, until, by the continuous radiation of heat from the centre towards the surface, a certain temperature has become permanent, and the subterranean heat has remained higher as the depth increases. This is proved by the hot waters of the Artesian springs, the temperature of

rocks lying deep in the mines, the glowing mass which volcanos eject from the depth of the earth. Humboldt does not venture to fix the boundary of the hardened surface and the fluid centre; but he considers that even in these more fluid parts, the movements of ebb and tide dependent on the sun and moon prevail. Now, as experience shows us that heat, in a perpendicular line downwards of 92 Parisian feet, increases by one degree of the decennial Celsius thermometer, granite must exist in a fluid state at a depth of 5.2 geographical miles, four or five times as much as the height of the highest point of the Himalaya mountains.

Humboldt distinguishes three modes of the development of the inner heat of the earth. The first is, that the strata of earth are periodically warmed and cooled by the sun and the seasons of the year, and thus arises a stream of heat from the exterior inwards, and then again from the interior outwards.* Secondly, in the regions of the equator, a portion of heat penetrates the earth, and flows in it towards the cooler poles, where it is again united with the air. Finally, our earth has been, since incalculable ages, in a state of gradual refrigeration; the inner central heat, which originally made the earth glowing hot, loses more and more by the gradual discharge towards the surface and into the atmosphere, although millenniums do not suffice to measure the degrees. We therefore live, as Humboldt expresses himself, between the glowing heat of the lower strata and the cold atmosphere, of which the temperature is probably below the freezing-point of quicksilver. (40 degrees of cold of Celsius = 32 degrees of Réaumur.)

There are celebrated naturalists who have denied the uninterrupted increase of heat from the surface to

* This heat does not penetrate far. In the temperate zones the strata of permanent temperature begins at a depth of fifty-five to sixty feet; and at half the depth winter and summer warmth have scarcely half a degree influence on the thermometer. In the tropics, the unchangeable temperature lies one foot below the surface.

the centre of the earth ; as, for example, Poisson, who declares all heat to proceed from the exterior inward ; but this hypothesis can now no more affect Humboldt's theory, which if it were even only a supposition, fully explains many phenomena which would otherwise be unintelligible.

An important mysterious force of the earth, which surrounds all atoms of existence like a wonderful chain, is magnetism, to which subject Humboldt has devoted a great portion of his time. Every change of temperature produces magnetic and electric streams, and these Humboldt investigated for years by means of the magnetic needle. The electro-magnetic streams circulate mysteriously in a continual variety of development through the earth, and their changes, which are shown by the sensitive needle, occur, to the hour, according to place, solar position, and warmth, and are suddenly modified only by the polar light. The sudden interruption of the constantly-flowing earth-magnetism, which takes place during the northern light, occurs simultaneously, even if the observers were thousands of miles distant ; it is like a vibration of the entire earth, or it runs like a pulsation in all directions of the earth's surface, with such extreme regularity that distances might be measured by it.

Humboldt has not been able to ascertain the causes of these sudden vibrations of the magnetic needle, the sign of disturbances and revolutions in the earth's magnetism.* It is a known fact that all matter is magnetic (*i. e.* attractive) as long as it is pervaded by electricity, and this fact may be explained by future philosophers. Humboldt discovered the variability in the mode of development, the inclination and the horizontal divergence of the earth-magnetism, to be the three phenomena by which this force can be observed on the earth's surface. He added three scientific lines as determining its equal force, equal attraction, and equal repulsion, which he called the

* Humboldt calls them magnetic storms.

isodynamic, the isoclinic, and the isogonic lines, and by imagining three lines graphically drawn over the earth, he showed thereby the vibrating and advancing direction (curves) of that mysterious force. Observations of this kind are extremely difficult and arduous to make, and Humboldt thinks that not for centuries will it be possible to understand the history of these intricate magnetic lines by accurate systematic observation. As he has always pursued this subject with great interest, he endeavoured to institute such regular experiments. Through his exertions Europe, Asia, Africa, &c., have been covered since 1828 with a corresponding net of magnetic observatories, extending from Toronto in Upper Canada to the Cape of Good Hope and Van Diemen's Land—from Paris to Peking. The discoveries of Oerstedt on electro-magnetism, and the corresponding results of Arago and Faraday were very welcome to Humboldt. Oerstedt found that electricity developed near a body being a conductor of electricity generates magnetism, while Faraday remarked that magnetism so developed would, on the contrary, also generate electric currents. Hence it follows that magnetism is one of the numerous forms in which electricity shows itself, and science acknowledged that the two forces were identical.* But the question of the last named of the physical developments of the many and intricate phenomena of earth-magnetism is not yet answered. It is yet unexplained whether the constant change in the direction of the magnetic phenomena—which would seem to indicate various systems of electric streams in the earth—is excited directly by the unequal distribution of heat, or whether it is introduced by the solar heat, whether the planetary revolutions influence it, or whether the currents in the atmosphere have their origin in the space between the planets, in the polarity of the sun or the moon. But the magnetic observatories erected at Humboldt's instance will assist the solving of this

* Pliny had already surmised this.

mystery, for now every regular or irregular movement of this force is observed on the most distant spots of the earth, and instruments as well as the senses are now so sharpened that Humboldt assures us the persons in charge of the observatories can at certain times take down observations every two-and-half minutes for twenty-four hours, and are able to measure a decrease of the magnetic power by $\frac{1}{10000}$ degree.

Humboldt calls the north-light (the polar light or aurora borealis) the end of a magnetic storm, and considers it a phenomenon which, since Faraday has discovered that the magnetic power develops light, stands in the most intimate relation with earth-magnetism. In the morning, the evening appearance of this discharge of light is pre-indicated by irregularity in the course of the magnet, and this shows that a disturbance must have taken place in the equable distribution of the magnetic power. According to Humboldt, the north-light is a kind of magnetic discharge, (as the lightning restores the disturbed equilibrium of the atmosphere)—which is sometimes so violent that it has been seen in full daylight (at Lowervörn in 1786). This phenomenon has not only been seen at the North and South Poles, but Humboldt has ascertained that it has been met with also in the tropics, even in Mexico and Peru towards the north, so that the spectator always has his own northlight according to the angle of view. But the explanation which Humboldt gives of the existence of this north light, which only received its name from the direction in which it was most frequently observed, is of the greatest interest. He considers it a self-luminousness of the earth, a light development of the planet, in a word an earthlight in opposition to the sunlight. The planet Venus also phosphoresces on that side not illuminated by the sun, and Humboldt thinks it very probable that planets and moons, besides the received and reflected

light of the sun should discharge a self-generated light.*

While Humboldt was examining the magnetic and luminous phenomena of the earth's interior, he also observed the phenomena which the heat of the earth had produced on the earth itself, and on its formation. Here he arrived at his favourite scheme of volcanic appearances. From the interior heat he deduced the revolutions of the earth, the former elevation of whole lands and mountains, the formation of their strata and minerals, and of the gaseous and fluid earths; he recognised this interior warmth as the cause of the local changes of the earth by vibration and eruption, such as the gushing forth of hot springs, the rising of oxygen or sulphurous smoke, the ejection of volcanic matter, and the eruption of volcanic mountains. In all these phenomena, he sees only the reactionary activity of the interior of the earth towards its crust and surface. From the remains and petrifications of antediluvian life, he judges that this reaction was formerly more powerful than it is now, that the oxygen must then have been discharged into the atmosphere more abundantly than at present; that it must, by the imparting of oxygen to plants, have produced a far more fertile vegetation; and this is shown by the extinct traces of former forests, the tremendous coal deposits, and other buried, burning materials. The earthquake—that perpendicular, horizontal, or circular vibration of the earth's surface and crust, which science can now measure in direction and force with tolerable accuracy, which is accompanied by dull noises and subterranean thunder, while the springs often dry and great desolation is caused—this became, for Humboldt, an important means to the knowledge of the earth. His

* Besides this *aurora borealis* there are other forms of terrestrial light. Humboldt includes among them the yet unexplained weather lights, the dry luminous fog of 1783 and 1831, the steady light of large clouds which Rozier and Beccaria observed, the bright nights of autumn and winter, &c.

experiences led him to the conclusion that earthquakes were always taking place every minute in some portion of the earth ; that therefore the interior of the earth was constantly reacting upon the exterior, that probably the high degree of heat of the earthy masses in their depth, where they exist in a molten condition, is the cause ; and that therefore the agitation is not confined to certain species of mountains, but may occur on any spot of the earth. But from the observance of simultaneous distant agitations, from the direction of these earthquakes and waves which frequently cross each other, from the subterranean noise which is often heard at miles distant from the active volcano or the revolutionary portion of the earth's surface, Humboldt recognised certain subterranean connected veins of volcanic activity, having their safety valves in the eruptive volcanos, and either discharging their explosive masses from the crater, or, if these craters are choked, finding another, and, for the inhabitants, a more dangerous outbreak for their fluids expanded by heat. Sometimes they are not ripe for eruption, and only produce earthquakes. Electric fluids, expanded by heat, are, according to Humboldt, the cause of all volcanic phenomena, from the faintest vibration to the most terrible eruption. These expanded vapours of boiling water, or melted metals and rocks, rising, roll along the volcanic galleries in the earth's interior, often find their outlets choked with crystallized or cooled masses, and then the pressure of expansion raises the earth or imparts the waving motion of the elastic fluids to the more solid mass.

But Humboldt also recognised the chemical changes in the earth's surface and in the atmosphere, as caused by the inner vital heat of our earth. The vapours exhaled the oxygen gas which the earth discharges into the atmosphere itself almost free from nitrogen ; many other peculiar gases which rise from various clefts in the earth seemed to Humboldt the evident proofs of a constant burning process existing in the

centre of the globe. These fountains of air often precipitate the matter they contain, and are frequently met with in such districts where volcanic traces are not even visible on the surface of the earth. It has been before mentioned, that Humboldt explains the greater richness and luxuriance of antediluvian vegetation by the greater quantity of oxygen it received, and this rose principally from the oxygen springs, of which many yet exist (mofettes) and which gave abundant nourishment to the plants. What the plants could not consume was absorbed by the chalk mountains of the surface, and thus gradually drawn from the air, which has thereby become respirable for men and animals. Fluids, slime, and melted earth, still rise from the centre of the earth, as well as oxygen and other gases, and the depth of their origin in our planet can be calculated by their heat. Humboldt connected the places of equal mean temperature on the surface of the earth by isothermic lines, and on the same system it was intended to draw certain lines showing the equal interior heat, to be called isogeothermic lines, and these were to be determined by the temperature of the waters which rise from the centre of the earth and flow from the tops of the mountains; but this method gave very unsatisfactory results compared to Humboldt's plan, as the temperature of these waters is very relative and depends on many extraneous circumstances. Cold springs only have a mean temperature when they, without coming into contact with the deeper warm springs or the cold ones from the mountains, have flowed for a considerable space in that strata where the permanent temperature of the earth begins, where the warmth of the air is not influenced by seasons or by day and night. (This, in the temperate zone, is from forty to sixty feet; in the equinoctial regions only one foot below the surface.) As regards the hot springs, Humboldt declares, that all those which he and others have discovered are situated at a distance from all volcanos; that, therefore, the heat of the interior earth gives

them their permanent or occasional heat (sometimes from ninety-five to ninety-seven degrees), that the hottest are always the purest, and that the greater heat of the springs must be occasioned by their rising from a deeper, *i.e.*, hotter source.

Humboldt has given some interesting explanations of the slime which is ejected from some portions of the earth, founded on his investigation of the American and Caspian mud volcanos. He considers these eruptions, which are not caused by earthquakes or by fire, as a link of the chain of phenomena by which the earth's centre acts on its surface, as something between fire volcanos and hot springs; they are the organs of an uninterrupted but weaker action of the planet, by which a communication between the centre and the surface had formerly existed, but which have been choked up, and where the cold slime now rises from an inconsiderable depth, while the fire volcanos are yet in *direct* communication with the glowing centre. Humboldt has made considerable investigations into their origin; he considers them vaulted elevations of the earth's surface, raised by elastic vapours, which have broken through and separated the earth's strata. This produced a basin, or kettle-shaped hollow, in whose centre a crater and cone formed itself. When the connexion between this opening and the inner earth is stopped, the volcano is extinct. In a similar manner volcanos have risen from the bottom of the sea, and have become inhabitable islands.

We have yet to mention another phenomenon investigated by Humboldt, namely, the volcanic storms, so named by himself. These are formed by the hot vapours which rise in the air during the eruption of a volcano, and which, in cooling, form a cloud which surrounds the fire-pillar often many thousand feet high, and from which lightning breaks forth and thunders roll; these are caused by the sudden condensation of vapour into clouds, which excites the violent electric discharge.

Being unwilling to enter into the details of Hum-

Humboldt's scientific acquirements, as they are collected by him in "Kosmos," we must omit his classification of volcanos into central and connected ones, especially as this system has been introduced into science by other naturalists. We will return to Humboldt's peculiar field, and treat of his results on the creative and destructive volcanic power, in reference to mountains and rocks.

This brings us to the extensive field of mineralogic geognosy, on which Humboldt always worked with great predilection with his old friend Leopold von Buch, and which treats of the formal composition and arrangement of the earth's strata, and gradually leads to the geographical form of its surface. The strata of the earth were to him the pages of a large book in which he read the events of the past; the kinds and forms of rocks he interpreted as the great characters of a history of creation extending over many thousands of years. He perceived the process of the formation of mountains as fourfold. He calls the matter which has once been projected from the interior of the earth in fluid masses, and which has now become more or less solid, eruption rock;—that matter which was contained in the fluid in small particles, and has been gradually precipitated, he calls sediment rock, and includes among it the greater part of the horizontal strata of earth, the so-called tertiary groups, which lie above the chalk formation, and contain fossil remains of mammalia, crustacea, &c. The transformed rocks are those changed by contact with volcanic or precipitated earth, or by vaporous exhalation or absorption of matters from below, while by conglomerates he means the sand and rock formation composed of mechanically-separated masses of the three other classes. All these four species Humboldt describes as still progressing in their formation, the action of fire and water, though not so violent as formerly, is still exercising its influence. Among the first class, the eruption rock, Humboldt includes granite and Syenite,* the quartz porphyries,

* A mixture of feldspar and hornblend, called after the town of Syene, in Upper Egypt.

greenstone, hypersthene rock, Euphotide and serpentine, Melaphyr, Augit, Uralit and Oligoklas-porphyr, Basalt, porphyry-slate, Trachyt and Dolomite. All those which former science included among the transition, horizontal, secondary or tertiary formations, Humboldt calls the sediment rocks, the precipitates and deposits of stalactite fluids, such as limestone or clayslate, whether the matter has been previously chemically dissolved in water, or only mixed with it in fine particles. To this class belong slate, coal deposits, limestone, Travertine (fresh water limestone, flint guhr*), and the real infusoria deposits,—a kind of earth, which, as Ehrenberg has proved, consists entirely of the bodies of infusoria, and which covers immense spots of the earth's surface. The sandstone formations are those rocks which Humboldt calls conglomerates. Humboldt proved that rocks, formerly different, may have changed, and that modifications are still continuing, and may be detected by comparative observations on the slowly-progressing changes in the great laboratory of nature, by direct chemical experiments, which, imitating in miniature the great processes in the laboratory of the earth, give the most simple conclusions.

As regards the geographic distribution of the rocks over the earth, the most prevailing material is carbonated lime; the next is the combinations of silicum with clay, of kali and natron with limestone, magnesia, or iron oxyde. As regards the age of the formations, the eruptive mountains are the oldest, and if remains of antediluvian animals and plants are found in any earth, its later formation is thereby proved. An extinct animal and vegetable life lies buried in the upper and middle strata. Humboldt justly says: "We ascend into past ages when we descend from strata to strata, investigating the position of deposits."

Humboldt, with his mind's eye, surveys the surface of the earth, explains the distribution of land and

* Formed almost exclusively of the silica of microscopic infusoria of the primeval world.

water from the other creative processes of the planet, and ingeniously connects the geographic knowledge of the earth with geology. He considers the present form of the continent as an elevation above the level of the sea, produced principally by the eruption of quartz porphyry, which has broken through the primeval terrestrial vegetation, as shown in the present coal deposits. What we call lowlands, Humboldt describes as broad ridges of hills and mountains, whose bases lie at the bottom of the sea—a table land, in short. The horizontal form of the land of the planet,—which is as 1 to $2\frac{1}{2}$ to the quantity of water, and of which there is three times more on the northern than on the southern oceanic hemisphere—has occupied Humboldt's investigating mind, the more as even in the times of Grecian antiquity it had excited great interest. The direction which the longitude measurement of the old and new world takes, has led Humboldt to new researches. Our old continent has its greatest length from east to west, while America has hers from north to south; and while, in the north, these two continents are abruptly cut off at their greatest breadth, they terminate in the south in pyramidal points, which Humboldt thinks the more characteristic because this southern pointed form is repeated on all the smaller quarters and peninsulas; and it has been proved that, the more simple the coast form and the divisions of a continent appear, the more uniform has remained the education and civilization of the inhabitants. He compares the much divided Europe to the uniform Asia, Africa, and South America. He acknowledges a subterranean power as the operating cause of all continental formation which did not create the entire continent at once and simultaneously, but at different epochs, by extension and elasticity of hot vapours and exhalations, which have, at different times, raised the earth's surface over the water, and by subsequent earthquakes and eruptions, formed the details of hill and valley. This elevation and revolution of the continent, Hum-

boldt, according to his own and his contemporaries' researches, does not consider as completed, but as still continuing. As there are yet portions of the earth's surface which lie below the level of the ocean,—for instance, the Caspian Sea,* the Dead Sea, the former 625, the latter 1230 feet below the level of the Mediterranean,—so whole territories rise still, though perhaps scarcely perceptibly in the course of a human life. Thus the eastern shore of Scandinavia has risen 320 feet during 8000 years; and Humboldt calculates that in 12,000 years, those portions of the sea near the shore, which are now covered by fifty fathoms of water, will be raised to the surface and become dry land. Thus the growth of the continent is proved! But if, on the one side, land is rising above the sea, one may also imagine a gradual sinking on the other; and Humboldt plainly foresees that some north-western portions of Europe, by the gradual depression of the surface, will sink below the water level and become sea. There is an absence of any proof for a real increase or decrease of the ocean, although in former ages the level of the sea was undoubtedly a widely different one to the present.

Over the mountains and the plains, and over the unstable surface of the ocean, lies the earth-surrounding sea of air, to which the oceanic waters refuse to impart their warmth, as the refrigerated particles of water become heavier, and fall into the warmer depth. But as the air ocean has its wind currents, which return according to regular laws (which Dowe especially has investigated), so there are also oceanic currents, which Humboldt has made the subject of interesting researches. Besides the well-known phenomena of ebb and tide, the movement of the waves in obedience to prevailing winds, and periodical air pressure, there

* Humboldt remarks that the periodical, irregular rising and falling of the waters in the Caspian Sea, seems to be a proof that the soil is yet capable of making weak oscillations, even without earthquakes, which must have been more universal at the period when the earth's crust was less thick.

are currents which cross the oceans like rivers, and flow past the unaccompanying waves like quiet shores; these are the so-called oceanic currents, which Humboldt has most attentively investigated. The principal of these is the Atlantic Gulf stream. It rises south of the Cape of Good Hope, runs across the Sea of Antilles and the Bay of Mexico, through the Straits of Bahama, proceeds in a north-western course from the United States, receives an eastern direction near the Bank of Newfoundland,—where one arm runs southward and flows to the shores of Iceland and Norway, to which it frequently brings, besides its warmth, various objects from the tropics. In the Southern Ocean there is a similar current, which, however, has a low temperature, while the Gulf Stream has a high one. We mentioned Humboldt's investigations on the nature of the Gulf Stream when we were sketching his American journey.

Humboldt adds to the sketch of nature which he has composed according to his own scientific acquirements, a sketch of the great ocean of air which surrounds our planet. He has investigated it accurately in the changes of its pressure, its climatic warmth, its humidity and electricity, and its universal barometric changes. The wonderful rotatory laws of the winds, discovered by Dowe, occupied much of Humboldt's attention, for they led back to universal laws which Humboldt had discovered in other phenomena of natural life. His arrangement of the frequently mentioned magnetic observatories which cover the earth he has endeavoured to make subservient for experiments on the laws of winds, and he anticipates important results on the regulation of winds from these connected simultaneously-made observations.

When we were speaking of Humboldt's Asiatic journey we mentioned the universal influence of the prevailing winds over climate, and as they have some effect in the distribution of heat, whose scientific classification was Humboldt's special aim in the isothermic lines instituted 1817, we enter here on a

new field of his pre-eminent activity, namely, that of comparative climatology.

Humboldt has a much more comprehensive view of climate than has hitherto been accepted ; all terrestrial forces are combined in it in his acceptation of the term, and his explanation of the varying climates and their causes is based on general scientific laws. The places he connects by the isothermic lines are far from parallel with the equator, for the many causes which modify the temperature influence their direction. The temperature is raised in the temperate zone by vicinity to the western coast, to bays or lakes, by the situation of the place in relation to large plains, or oceans free from ice, by the prevalence of south or west winds, by protecting mountain-ridges, by the absence of marshes which would remain covered with ice, by absence of forests on a sandy soil, by pure sky, and by the vicinity of a warm ocean current. The opposite of all these must make the temperature cooler, but in general in the temperate zones, especially in Europe, the eastern coasts are colder than the western, because the east winds come over cold countries, the west winds come across the sea. Humboldt says, that the studies of his friend George Forster have especially led him to these results.

As the temperature, properly, grows colder with the height of latitude, or the distance from the equator, Humboldt paid especial attention to this on his investigation of meteorological precedents, his institution of botanical geography, and other scientific plans, and he says that on his many journeys in and out of the tropics the comprehension of this law of the decrease of temperature with increasing latitude, has always been a prominent subject for investigation. To these may be added his results on the snow boundary, the humidity and the thawing power of the air, and on electricity.

But from this view of our planet, which he seems to have built before our eyes, Humboldt goes on to the organic life of plants and animals ; the animated

surface of the earth became no less the object of his investigation than the fiery fluid, or petrified form of the planet and its outer form.

With the infusoria he begins his account of the animal kingdom, and with the microscopic plants, as an entire perfect plant, the circle of vegetable life. Humboldt was assisted in his general investigations of this organic world by the most distinguished contemporaries, who revealed the secrets of the smallest space by means of the microscope, and discovered life, motion, and repetition of the universal Cosmodian conditions of existence in every vegetable or animal organization invisible to common eyes. Organic life is active everywhere on the surface of the earth, in its precipices and its atmospheric altitudes; the great ocean contains minute microscopic life far into the polar circles of the arctic ocean. It has been proved by direct observation, that "in the eternal night of oceanic depths," as Humboldt expresses himself, more animal than vegetable life is developed, while on *terra firma*, the vegetable principle prevails; yet the bulk of the latter far exceeds that of the former, although there is less land than sea. Modern naturalists believe they have discovered infusoria in the air. Humboldt considers this discovery still doubtful, but not impossible; he thinks that just as well as it has been proved that pine pollen falls from the atmosphere, it is possible that little infusoria may be raised upwards in vapour, and be retained floating in the air for some time.* Ehrenberg has also discovered that the misty dust rain which clouds the atmosphere near the Cape Verd islands, 380 leagues from the African coast, consists of the remains of eighteen different silicious, polygastric infusoria.

Humboldt classified plants and animals first, according to their social or their isolated character. In his

* Even in portions of melted ice floating in round pieces in a latitude of $78^{\circ} 10'$ more than fifty kinds of silicious polygastric were found, as well as coecinodisks with their green ovaries, beings therefore capable of supporting life in the extreme of cold.

"*Flora Friburgensis*," which was published in 1793, he called those plants social, which always appear in groups, and cover large surfaces uniformly, thus contributing to give a physiognomic character to a landscape, which the moving, often travelling animals, cannot do. But the interest of Humboldt's geographical conception of plants, lies in his classifying them according to climate, whereby they are regularly ranged one above the other, on mountains, as they increase in height, and the belt of the mountains has a warm, a temperate, or a cold climate. Humboldt, in subsequent years, says of himself: "It was a fortunate circumstance of my life, that at a time when I employed myself almost exclusively with botany, my studies, favoured by the view of a grand climatically contrasted nature, could be directed to this subject," namely, to connect the geography of plants with the theory of the distribution of warmth over the earth, to regulate plants according to their natural families, and then distinguish them numerically.

Humboldt endeavoured to apply the principles which he had founded, and which include especially the direction of the isothermic lines, which he draws over the earth, to connect all points of equal mean temperature, and on which the botanical geography naturally depends, to this subject; he endeavoured to apply these principles also for a geography of animals, although these latter are more apt to change their location at will, between the equator and the poles, while the plants wander only in the egg (as floating seeds), and once rooted, remain dependent on soil and temperature.

But in a perfect sketch of nature, man cannot be omitted. The human race was therefore also studied in its physical degrees of races and tribes, and their geographical distribution. This knowledge, Humboldt endeavoured to obtain, by a more accurate investigation into the history of civilization, of race, of common language, of modification in the original tendencies of mind and feeling. He also arrived at

the conclusion of the unity of the human family, whose different races are but forms of the one only kind, which opinion other naturalists had also already established. Languages also seemed to him as the intellectual creations of humanity, and being allied in their development, they bore the stamp of nationality, and have, therefore, become important, as means to recognise the similarity and the variety of human races. Language is to him a part of the science of the mind ; a sphere surrounding humanity, as a spiritual chain, but here with mankind, he fixes the boundaries of his sketch of nature, which he will not exceed.

CHAPTER XI.

THE SENSE FOR THE ENJOYMENT OF NATURE IN OPPOSITION TO OBJECTIVE OBSERVATION—NATURE AS A MEANS OF IMPROVEMENT FOR THE MIND AND HEART—HISTORY OF A PHYSICAL VIEW OF THE WORLD.

WE have given the chief features of Humboldt's general views of the physical arrangement of the world in a brief summary. But, as we had occasion to remark in his short biography, an important feature in Humboldt's character is, that he not only thinks and observes, but that he also *feels*, and that he discovers the beautiful in form and movement, as clearly as he describes it. Natural science is to him, not a matter of memory, but of life, not only mental activity, but mental improvement, not only the knowledge of the world beyond us, but a means for the better development of ourselves.

Humboldt teaches us in a most attractive manner, how natural studies can be a means of civilization, how man may be thereby induced to perceive the reflection of the outer world on his own imaginative power, by the feeling of poetical enjoyment and reproduction, by the art of landscape painting, by the cultivation of plants and of exotic flowers, and finally, by understanding the great natural laws, first in detail, and then gradually in their entirety. This Humboldt teaches us in a most attractive way. At the conclusion of his picture of nature, he departs from the purely physical contemplation of natural objects,—a contemplation which he has throughout purposely denuded of everything approaching to an imaginative garb,—and proceeds to investigate the subject with regard to its influence on the feelings of the human mind.

This produces that higher degree of natural appreciation, of which Humboldt, on another occasion, says, that it springs from ideas from a comprehension of nature. The pictures of natural life received by the perceptive faculties, are reflected on the feeling and the imagination, and thus reveal an inner world in man. This inner world must be studied by intelligent men, for it teaches us to know the source of our reasonings, of our mental activity, and our emotions. By exciting the phantasy, which first is agreeably impressed by the view of natural objects, and afterwards endeavours to retain the fugitive picture, most men are excited to a nearer acquaintance with objective nature. The desire for distant, new, unknown forms of nature is excited, with it the attempt at a poetical treatment of natural scenes, at artistic representation of the beauties of nature in landscape painting, or the cultivation of graceful or noble plants and animals. Humboldt wishes to make all these feelings more universal, more intelligible, and more productive, and therefore, at his advanced age, he begins to write on it. The second part of "Kosmos" treats exclusively of this subject.

Starting with a description of nature, he endeavours to describe the feeling for nature as it existed in different ages and nations; he shows that in the remotest antiquity, the time of the Hebrews and the Indians, feeling for nature was not quite absent, though less loud and evident; that the Greek had neither description nor poetry of nature, and only took landscapes for no more than the background for passions, heroisms, &c., delineated by human figures; that the Roman was still more sparing in his susceptibility for the beauties of nature, and left this sense undeveloped, spite of his country-life and tillage of the fields, in the cold solemnity, sober prudence, and exclusively practical direction of their popular life; how, with Christianity, the feelings of the ancients, till then dead, and directed only to action and to the expression of human power, and not to external objects, were inspired with new senses; how, with

the civil liberty of the human race, the view of the great nature was extended, and with the love of solitude, of solemn reflection, and self-examination, the feeling of beauty and order in nature sought to admire the goodness of the Creator; how Christianity inspired individuals of the Germanic and Celtic races, more devoted to adoration of nature, to investigate the preserving and destroying forces in nature, and thus incurred the risk of falling a victim to the belief in sorcery of the common people: but how, in the middle ages, the unconcealed joy in the pleasures of nature was developed, mixed, in the Indo-Germanic races of Northern Europe, with romantic sentimentalism; how, finally, in more modern centuries, depth of feeling and vivacity in the appreciation and influence of nature prevail among nations. Humboldt describes all this in an instructive and interesting manner, and he then advocates that poetry of nature where the poetical is born from the secretly-felt union of the sensual with the intellectual, from the feeling of universality and unity of natural life.

Landscape-painting has also, in Humboldt's opinion, an influential effect as an incentive to natural studies; it increases a love for nature. On this subject, Humboldt enters into the gradual introduction of landscape-painting, which, in its real development, belongs to the latest period of the middle ages, and owes much to the brothers Eyck. The greatest era in landscape-painting was the seventeenth century; at that time there lived Claude Lorraine, the idyllic painter of light and of clear perspective; Ruysdael, grand in dark forests and threatening clouds; Gaspard and Nicholas Poussin, distinguished for their representation of romantic scenes; Everdingen, Hobbema, and Cuyp, for their fidelity in copying nature. These painters, says Humboldt, intelligently copied what the vegetation of Northern Europe, of Southern Italy, and of the Iberian peninsula, offered them. But he recognises a higher grade of landscape-painting in the representation of individual forms of nature, which was not possible till the geographical knowledge of

the world was extended by travel, and the sense of beauty was developed by the investigation of botanical forms. At the present time single individual forms of exotic plants, single fruits, branches, or buds (by Johann Breughel), the individual characteristic of the torrid zone (by Franz Post, of Haarlem, and Eckhout, who accompanied Prince Maurice of Nassau to the Brazils), are made the subject of pictures; landscape painters have also commenced to represent the simpler forms of our indigenous flora, with a fertile and creative phantasy and a depth of feeling, which nevertheless reflects the whole of nature, because on every spot of the earth nature repeats herself.

We have only briefly sketched Humboldt's views on landscape-painting; he demands natural physiognomy in a landscape; the picture is to express the dark feeling of a local natural character; and to conceive and adequately represent this feeling, Humboldt considers as the task of a landscape painter.

But still he describes this impression of a picture as less exciting and narrower than the direct sensual perception of exotic plants in hothouses or parks, and distinguishes the artistic impression from the contemplative botanical interest; and although plantations and gardens have not the varied means of landscape-painting—such as light and colouring, the command over form and quantity, the mysterious unbounded distance of perspective—that is quite compensated by the impression which REALITY always exercises over the senses. Humboldt is very partial to such living garden-landscapes, and wishes to see his descriptive botanical physiognomy applied as a means in the art of landscape-gardening.

We must now follow the great man, whose portrait we are endeavouring to draw, on another intellectual field, which he has made abundantly fruitful; this is the history of the physical contemplation of the world, the knowledge of the gradual development

and extension of the conception of nature *in its entirety*. For the desire of humanity to know heaven and earth, and to comprehend the connexion of the great natural forces in both fields, has existed since the remotest ages, and among the oldest nations of antiquity. A contemplative observation of the phenomena and developments of nature, has, in all ages, been indispensable to the intelligent, and the progressive knowledge of nature, in its relation to the universe, has always kept pace with the civilization of mankind. Like all knowledge, this first contemplation of nature begun with single objects, and the presumed intimate connexion of these with entire nature. With increasing civilization this supposition became a knowledge of nature, and the prophetic phantasy of a Plato, Columbus, and Kepler, dimly pointed to the end which experimental science subsequently attained by other means.

The gradual development of the comprehensive faculties of humanity, which produced the notion of the unity of all natural phenomena, as a whole, intimately connected in all its parts, is produced, according to Humboldt: first, by the independent pursuit of human reason of the knowledge of natural laws—or a thoughtful observation of the phenomena of nature; secondly, by the great terrestrial events which have suddenly extended the horizon for study; thirdly, by the invention of new means for the extension of actual observation, (as telescopes, microscopes, and other optical and scientific instruments) which has brought us into nearer intercourse with the objects of this earth, and with those of the most distant regions, having thus strengthened and multiplied our capabilities of perception.

Humboldt started from these three features of the causes of progress in his studies on the history of natural contemplations; and on this field, also, his universally developed mind was of great assistance to him. He traced the *gradually* increasing knowledge of nature, the consequence of a latent endeavour for

improvement in man, from the oldest natural history of the old Hellenes. He calls the great world events, such as the voyage of Coläus from Samos, to beyond the pillars of Hercules, the expedition of Alexander to India, the dominion of the Romans, the spread of the Arabian religion, and the discovery of America, *sudden* means of increasing the knowledge of nature, especially in the life of those nations which once inhabited the shores of the Mediterranean. And, at this point, Humboldt refers to languages which each operate as a means of communication between separated nationalities, and which, by comparison with each other, by an investigation into their constitution, and the similarity of their character, assist in the study of the human races.

Humboldt likes always to build his investigation on some object, in all his observations which lead him to universal subjects, and, thus, in his description of the world in general, which is represented principally by natural, philosophical, and rarely by perceptive illustrations, he seeks some point of earth upon which he can advance contemplatively and experimentally. He takes, for this purpose, the Mediterranean Sea as the circumscribed space, round which those nations lived who prepared the foundation for our subsequent western civilization. From these shores of the Mediterranean he explores the course of civilization, and finds the history of the knowledge of nature advance progressively with civilization, but not proceeding from one, but from several primitive nations. In the remotest antiquity, at the extreme horizon of past historic ages, we see, contemporaneously, several bright stars from which the rays of civilization, crossing each other, have flowed on, as in Egypt, Babylon, Nineveh, Cashmere, Iran, and China. Humboldt says, on this occasion, "these central stars remind one, involuntarily, of the greater among the dazzling stars of the firmament, of the eternal suns, in space, of which we perceive the brilliancy of their light, but do not know, except of a very few, their distance from our planet."

Humboldt, following his usual method, takes the Mediterranean as the point where he begins his physical history of the world; he divides the Mediterranean into three parts; the Egean, the Ionian, and the Tyrrhenian seas, and recognises these forms of the thrice divided Mediterranean as exercising a great influence on the earliest boundary, and earliest extension of Phœnician and Grecian voyages of discovery; he shows how important is the physical form of the coasts in the course of events, the direction of naval expeditions, and the change of government, also as a mode of developing ideas. From thence he traces the paths of the early civilization of the Hellenes, as shown in their voyages in a north-eastern direction, by their argonautic expedition to Colchis, towards the south by the Ophir expeditions, and westwards by Coläus of Samos, and as evinced also by the campaigns of Alexander the Great, which opened new roads of civilization, and for the advancement of ideas, as new portions of the earth were included in the circle of universal knowledge by conquest, language or literature. The Greek spirit encouraged the intermingling of nations, from the Nile to the Euphrates, from the Jaxartes to the Indus. The extension of the knowledge of the world was a sudden one, both by individual study of nature, and by intercourse with other ancient civilized and commercial nations.

Humboldt pursues the increasing knowledge under the Ptolemeans, after the dissolution of the Macedonian empire, and sees in the commerce of Egypt with distant countries, in exploratory voyages to Ethiopia, in the long ostrich and elephant hunts, in the menageries of the royal palaces of Bruchium, &c., stimulants to the study of natural history, and to the increasing store of observations which were made at this era of the Ptolemean, and of the Alexandrine school, less by observations of individuals, than by order, comparison, and explanation of formerly acquired facts. He then points to the foundation of the Alexandrine Museum, and of two libraries, as the results of the practical sense, the comparative obser-

vations, and the universalising of the natural science of that age. It was, as Humboldt expresses himself, the age of encyclopedic learning; a connexion of the knowledge of heaven and earth—where astronomical and geographical progress was made—where the movements of the planets were more accurately ascertained, but where, at the same time, all knowledge of the absolute size, form, mass, and physical constitution of the world remained on its old footing.

In the Roman world dominion, Humboldt sees the first signs of an union of the three above-named divisions of the Mediterranean into one confederation, connected with other great continents; he sufficiently appreciates the influence of a great confederation on natural science; he sees the different previously individually progressing streams of civilization united here; Rome had become the centre of this great new circle. Geology was advanced by tillage; Strabo and Ptolemaeus rose up as the supporters of geographico-physical and mathematical science; mathematical optics and chemical science commenced; and Pliny made his first attempt at a physical geography.

And now Christianity appeared. In it, Humboldt perceives the origin of the gradually progressing feeling of the unity of the human race—the great fountain of benevolence, of the humanising of nations in their morals and manners. He has thus recognised four great eras in the progress of knowledge in the universe. 1. The attempts to advance from the shores of the Mediterranean eastward towards Pontus and Phasis; southward, to Ophir, and tropical auriferous countries; and westward, towards the pillars of Hercules, in the ocean. 2. The Macedonian campaign under Alexander. 3. Period of the Lagides; and 4. Roman dominion: but, he acknowledges besides, the immense influence of the Arabian invasion, which introduced a foreign element into European civilization, and of the discoveries of the Portuguese and Spaniards in the six or seven centuries subsequently occurring. Both these events considerably advanced and extended

physical and mathematical science, and the knowledge of astronomy and geography. Henceforward, says Humboldt, the advancement of cosmical knowledge was no longer dependent on single political events, but on the events occurring in space. The Arabians, a Semitic, primitive race, not only opposed barbarism, but went back to the sources of Greek philosophy, and opened new paths to natural observation; therefore Humboldt, who has so well proved that the life of nations is influenced, besides their intellectual qualifications, by many objective conditions, of soil, climate, and vicinity of the ocean, perceives in the irregular form of the Arabian peninsula, an important reason for the great intercourse this nation had with the world, and their consequent influence on the study of natural sciences, which was particularly favoured by their native love for nature and her powers. They cultivated pre-eminently medical science and chemistry, and founded a new scientific era in the latter. Humboldt pronounces the importance of chemistry to consist in this, that through it the first knowledge of the difference of matter, and of the influence of its powers not visible by movement, was obtained, and that thus the *admixture* of matter became a branch of knowledge, as well as the *form*. But the knowledge of the earth in the heart of the continent was also cultivated by the Arab intellect as well as astronomy, and mathematic science in general.

And now came the era of oceanic discoveries; the fifteenth century impelled all intellectual labour towards one goal; the views of the middle ages were gone, and a new age was preparing.

The western hemisphere was discovered—the first ineffectual discovery of America in the eleventh century became, through Columbus, a new discovery of civilization. The partiality which Humboldt shows for this event, and its consequences, in all his descriptions, is explained in the biographical account of his life. He was, in contrast to Columbus, the geographical discoverer of the American tropics, the scientific dis-

coverer of those districts ; his great work was directly allied to the results of the physical knowledge of the world acquired by these oceanic discoveries, which extended the horizon by a new world. Humboldt's name, therefore, ranks with those of Albertus Magnus, Roger Bacon, Vincent de Beauvais, Columbus, and Gama. The two last named men are the conquerors of the space on which Humboldt cleared away obscurity, and opened the land to science. But the Pacific was also opened to the comprehension of men ; not only the form of the western coast of the world, but the form of the eastern coast of the old world, was ascertained, for, as Humboldt shows, the knowledge of the numeric relation of the bulk of water and land on our planet was freed from erroneous results, and the condition of many other phenomena, such as the degree of moisture in the atmosphere, the varying atmospheric pressure, the vegetative power of plants, the greater or lesser distribution of certain families of animals, was explained. The western nations of Europe had, therefore, the richest store of material for a study of physical geography at their command in a very excited age, where a numerous European population were in the most direct intercourse with a great, new, and magnificent tropical nature in the American plains and mountains.*

Vega says that man, on his journeys to distant regions, sees land and stars change at the same time, and it therefore follows in the development of natural knowledge that important discoveries on the earth must increase our knowledge of the world, or, more accurately, of the firmament. By the employment of perfected telescopes new regions of the heavens were revealed, and a new world of ideas born. Columbus gained a large space of earth for humanity ; Copernicus, almost at the same time, made similar discoveries in the universe, and the telescope enlarged the circle

* Compare Humboldt's critical investigations into the historical development of a geographical knowledge of the new world and of nautical astronomy in the fifteenth and sixteenth centuries.

of this human knowledge to infinity. Kepler discovered the great forces of the movement of world-bodies, which Copernicus had surmised; and the great theory of gravitation which Newton introduced changed physical astronomy into the mechanics of the sky.

We do not follow Humboldt in his illustrations of the history of the development of astronomy from Galileo to Kepler, and of the mathematical epoch from Newton to Leibnitz, because he has only collected the results of his predecessors in his own manner, and it does not include his own special researches. But with the discoveries of his contemporaries, Humboldt is intimately connected, for he had a direct or indirect share in all the advances made in natural sciences. Therefore his assistance in the sciences of the heavens and of the earth is gloriously pre-eminent in the great branches of study on warmth, light, magnetism, and all great forces, whose better explanation is the intellectual triumph of the present age.

We have thus endeavoured to give another intellectual portrait of Humboldt, by a general sketch of his "Kosmos," which we have made with all possible fidelity. But the great work is not yet completed; a third and last volume will give us the results of the discoveries on which the present condition of science is principally founded. And as "Kosmos," the great legacy to the German nation, is still incomplete, the life of Humboldt is also incomplete, and we take leave of him with the ardent wish that he may yet dwell for many years on this earth, with whose mysteries he is so familiar, and from which he has culled such abundant fruits of knowledge.

CHAPTER XII.

GLEANINGS OF HUMBOLDT'S LIFE—ILLUSTRATIONS OF TRAVEL
AND OF NATURE.

THE life of Alexander von Humboldt is so fertile in objective and subjective events, that it was impossible to represent the various scenes of his adventures, scientific and social, in former chapters. We often hurried over events, views, and landscapes, in order not to fall from the field of the biographer into that of the writer of travel; but we often wished to tarry longer, and give the dangers and impressions of new, bold discoveries, or try the effect of many a beautiful natural scene upon the mind of our reader. As we wish, however, to satisfy the readers of this biography in this respect also, and bring Humboldt before the people in the various circumstances of his glorious activity, and in order once more to follow him in his thoughtful contemplation, clear explanation, and instructive tuition of nature, we have gleaned some stray sheaves on the paths traversed in the previous chapters. We append, therefore, some scenes of travel, natural phenomena, and views, extracted from Humboldt's writings, as a gallery of sketches which will fill up the crude outline, and the gaps in our portrait of Humboldt.

ASCENT OF THE PEAK OF TENERIFFE.

The real ascent of the mountain begins at Orotava. Early in the morning of the 21st June, Humboldt and his companions were on the road which leads to the summit of the mountain. It was not an agreeable day, and, from sunrise until ten o'clock in the morning, clouds covered the point of the mountain, which, with a clear sky, would have been visible from Orotava. (Humboldt says:—The journey to the peak of Teneriffe is the same as the journeys to the vale of Chamouni in Switzerland, and to the summit of Mount Etna in Sicily, where the traveller is obliged to follow his guides, and sees only what other travellers have before seen and described). A narrow stony path led from the town of Orotava through a fine chesnut grove into a district covered with bushes, and with several varieties of laurel and tree heath; the stems of these heath-plants have a considerable thickness, and flower nearly the whole year.

Arrived at the station Pino del Dornajito, Humboldt had a splendid view of the sea and the northern portion of Teneriffe. A very voluminous gushing spring found here showed a temperature of fifteen degrees warmth, which was very surprising to Humboldt, because the temperature of springs is generally the same as the mean temperature of the locality, and the barometric altitude measurement coincided accurately with the thermometric measurements, whence it must be presumed that the temperature of this spring is lower than the mean atmospheric temperature, especially as the spring had its source on a higher point of the peak. From this point Humboldt ascended constantly without passing a single valley, and crossing only the little clefts, like folds in a mantle, surrounding the volcano. The points which, from the island, seem separate volcanic mountains, such as Chahorra, La Urea, &c., Humboldt found to be little hills leaning against the peak, and

hiding its pyramidal form. Through the heath district Humboldt ascended into the region of ferns, where the root of one very plentiful kind serves as food to the inhabitants of Palma and Zomera; then he came to a wood of juniper and fir trees, and at last to a plain, like a large green sea, covered with ferns, and which it took the travellers two hours and a half to cross. In addition to this they suffered from the very great heat, which was reflected from the soil. The plain, formed of pumice-stone, is covered with the beautiful, odorous, flowering *Retema* plant, sometimes nine feet high, with which the passing hunters decorated themselves, and which served the goats of the peak as nourishment. These goats live here wild, have a dark brown skin, and are eaten as a delicacy. As soon as Humboldt arrived on this pumice-stone plain, he saw that the character of the landscape, which had been so fertile hitherto, was entirely changed; at every step he came upon immense volcanic productions; everything announced a quiet, deep solitude of a deserted district, which extended over ten square miles of desolation. From here the island seemed like a colossal heap of burnt matter, round which the vegetable world had formed a small border. Through narrow and deep clefts, hollowed out by the former mountain-streams of olden times, Humboldt came to a mountain level, *El monton de Frigo*, and from there, at a height of 9312 feet, to a station, *Estancia de los Inglesos*, where he and his companions had to pass the first night.

Humboldt's dwelling for the night was a cavern, which protected him from wind and weather; the guides lighted a fire of dried branches, and lay down, without tents or cloaks, upon a heap of burnt stones, where the fire, smoke, and wind, were very troublesome. They tried to make a screen of handkerchiefs tied together, but the fire caught and consumed a portion of it before the travellers perceived it. Humboldt had never passed a night at such an elevation above the sea, and did not then imagine that he would

some day visit towns on the ridge of the Cordilleras, higher than the peak of Teneriffe, which he hoped to reach next day.

As the cold increased, clouds lowered round the peak, and, although the north wind drove them furiously away, new ones were always gathering, and the moon, with a peculiarly blue disk, sometimes peeped through clouds and mist. Gradually the point of the volcano shrouded itself in thick mist, which suddenly again separating, showed the large pyramid of the peak in threatening vicinity, casting its tremendous shadow on the lower clouds.

At three o'clock in the morning Humboldt and his companions started on the way to Piton, the guides faintly lighting the road with dim pine torches. In two hours they reached a plain called the station of the natives, where the people rest who fetch ice and snow to sell in the neighbouring towns. There is a so-called ice cave here 1732 toises (10,392 feet) high, so situated that the rays of the sun cannot enter it to melt the ice and snow which accumulates during the winter. Humboldt and his companions left this ice cave with the morning twilight, and struggled on through the broken lava, having often to use their hands for climbing. Here an atmospheric phenomenon surprised them—they seemed to see rockets rising in the east, the guides had never seen this before, and anticipated an approaching eruption of the volcano, when Humboldt perceived that the apparently floating sparks were the reflections of stars which mirrored themselves in the moving mist. The journey was now continued through the so-called Malpay, and became extremely fatiguing and difficult, for the lava has not only very sharp edges and forms caves of several feet deep, but also frequently breaks off and rolls down. The indolence and ill-will of the guides made the ascent more difficult still, for they did not wish to go any further, sat down every ten minutes to rest, secretly threw away the minerals which Humboldt and Bonpland had carefully col-

lected, and it even appeared that none of them had ever been on the summit of the volcano. In spite of these disadvantages, Humboldt perseveringly followed the path for three hours, when they arrived at a little plain in whose centre the Piton or Sugarloaf rises, and where the outlets of the peak are, which the natives call nostrils, and from which vapours sometimes rise which have no smell and seem to consist of pure water.

The steepest part of the mountain had to be climbed now, and the ascent could only be achieved by following the remains of an old stream of lava which formed a kind of rocky wall in the midst of the rolling ashes. After climbing with hands and feet up the sharp pointed lava mass, they ascended the Sugarloaf. In about half an hour they had surmounted the cone, about ninety toises high, and the way would have been more dangerous still had the so-called Sugarloaf been covered with snow. Humboldt was shown the spot on which Captain Baudin had once nearly lost his life.*

At eight o'clock in the morning, in a freezing temperature, Humboldt reached the top of the cone, which scarcely afforded sufficient room for the whole party to sit down to rest. They could not see the crater itself, because lava and brimstone had formed a kind of wall round it. An opening on the western side, probably formed by a stream of lava, afforded an entrance into the kettle of the volcano; Humboldt, followed by his companions, descended to the bottom of the funnel, whose eggshaped mouth must be 300 feet in length, and 200 broad. The warmth they perceived here proceeded from some slits from which watery vapours flowed, accompanied by a peculiar rushing sound, and the interior of this crater afforded the picture of a volcano which has for millenniums

* Captain Baudin had been bold enough to ascend to the summit during the snowtime in 1797. When he had got about half way, he slipped, and rolled down to the next plain, where, fortunately for him, his fall was broken by a heap of lava covered with snow.

ejected fire only from its sides. Without further danger Humboldt and his companions reached the bottom of the funnel-shaped crater, whose depth may be about 110 feet, and which, like all extinct volcanoes, seems to have changed little for centuries. Indeed, the majestic effect of the deep ravine seemed to Humboldt to consist more in its height above the level of the sea, in the desolation of this elevated spot, which must be 11,500 feet high, and in the extensive prospect which the summit of the mountain affords. Humboldt says, "experience has taught us that the tops of the highest mountains rarely offer such fine prospects as the less high summits of Vesuvius, the Rigi, and the Puy de Dôme. But the peak of Teneriffe unites by its slender form and its locality all the advantages which less high mountains possess; from its summit is seen not only an immense expanse of ocean, but also the forests of Teneriffe, and the inhabited portion of the coast, in such vicinity as is adapted to produce the finest contrasts of form and colour. As we were sitting on the extreme edge of the crater we directed our attention to the north-west, where the coast is studded with villages and hamlets. Below us the mass of exhalations driven by the wind formed the most varied pictures. A monotonous layer of clouds had been separated on several points, by currents of air which the heated earth sent up from below. The town and port of Orotava, with its gardens, vineyards and ships, lay before us. From the height of these solitary regions our eyes fell on an inhabited world; we had the contrast between the smiling appearance of cultivated plains and the barren sides of the peak, the steep precipices covered with loose stones, and the plains without a trace of vegetation. We saw the plants ranged in zones, according as the warmth of the atmosphere decreases with the ascent."

The extreme transparency of the atmosphere permitted the travellers not only to distinguish villages, vineyards and gardens, from the top of the peak, but

even single houses, the sails of ships, and the trunks of trees; but the stay at this considerable height had nevertheless become very unpleasant, in consequence of the cold, which was severe in spite of the season, (June), for the thermometer had fallen to two degrees (Celsius), and a violent west wind forced the travellers to seek shelter at the foot of the Sugar-loaf. Face and hands were numbed with the cold, while their boots were burnt by the hot soil on which they stood. They commenced the retreat; the Sugar-loaf, climbed with such difficulty, was deserted in a few minutes, although the descent had to be cautiously made, on account of the moveable lava and slippery ground. They first reached the plain of the retema plants, at a temperature of $22\frac{1}{2}$ degrees, which seemed a suffocating heat after the cold of the summit, and then entered gradually the refreshing temperature of ferns and bushy heaths.

Towards evening they arrived again in Orotava.

THE LLANOS.

It has been mentioned in former chapters that Alexander von Humboldt suffered great hardships in traversing the "Llanos" (the treeless, immense plains of southern America). In order to give our readers an idea of these expeditions, we append a sketch, made by Humboldt of the nature of these steppes.

"Solitary huts, made of moss and branches, and covered with bulls' hides, lie at a day's journey from each other. Innumerable herds of wild bulls, horses, and mules, roam about the steppes. Primeval forests and impenetrable darkness, prevail on the narrow damp boundary which surrounds the desert, mighty granite rocks narrow the bed of the foaming rivers. The wood resounds with the thunder of the rushing waters, with the roaring of the jaguar and the dull howling of the monkeys. Where the shallow stream has left a sand-bank, there the heavy bulk of the

crocodile lies with open jaws, immovable like a rock, sometimes perched on by birds. With its tail coiled round the stem of a tree, the tiger-spotted boa lies watching on the shore, sure of its prey. Darting suddenly forward, it seizes at a bound the young bull or the weaker game, and forces its prey, coated with slime, down its swelling throat. But when, beneath the horizontal rays of the never-clouded sun, the burnt-up grass has fallen into dust, then the parched soil gapes as if it were agitated by tremendous earthquakes. Like roaring waterspouts, contrary gusts of dust-clouds rise eddying funnel-shaped; a dull straw-coloured demilight shines over the desolated ground from the apparently lowering sky; the horizon diminishes, the steppe shrinks, like the traveller's courage. The hot dust which floats in the misty veiled atmosphere increases the oppressive, ill-odoured heat.

While the animals in the icy north are frozen by the cold, the crocodile and the boa slumber here motionless, buried deep in the soil. The drought brings death to all, and the deceitful mirage of the waving water pursues the thirsting. Enveloped in thick clouds of dust, and tormented by a burning thirst, the horses and bulls wander about, the latter roaring loudly in their anguish, the former snuffing the wind with outstretched nostrils, to discover the vicinity of a not entirely-evaporated ditch in the moisture of the breeze. And, even when the coolness of the long night succeeds the burning heat of the day, the horses and herds cannot enjoy a moment of repose. Immense bats, vampire-like, suck their blood while they sleep, and claw themselves on to their backs, where they produce festering sores, in which a host of stinging insects house. When, after the long drought, the beneficent rainy season commences, the scene is suddenly changed; the deep blue of the unclouded sky grows paler, and at night one scarcely perceives the faint space in the sign of the southern cross. The gentle phosphorescent glimmer of the Magellan clouds is extinguished, and even the signs of the Eagle and

the Serpent-bearer which stand over head, shine with a tremulous light. Like distant mountains, single clouds appear in the south, the mists spread like fogs over the zenith, and distant thunder announces the refreshing rain. . . . Scarcely has the surface of the earth been moistened, when the fragrant steppe is covered with the most varied grasses. Attracted by the light, low plants unfold their slumbering leaves and greet the rising sun, together with the song of birds, and the opening buds of the water-plants. Horses and cattle graze in the full enjoyment of life. The beautifully-spotted jaguar hides in the high grass, and, cat-like, springs to catch the passing animals. . . . Sometimes one sees the damp clay on the shores of the morasses rise slowly and by pieces, with a violent noise like the eruption of little slime volcanoes, the earth is thrown high in the air; . . . they who are familiar with this phenomenon fly from the spot, for a gigantic water-serpent, or a thick-skinned crocodile rises from the cavity, awaked from the simulated death by the showers of rain. As the rivers gradually swell, nature forces the same animals which were perishing with thirst for the first half of the year on the waterless dusty soil, to live now as amphibious animals; a portion of the steppes seems like a vast inland sea. The mares retire with their foals to the higher banks, which project like islands from the surface of the water. The dry space decreases day by day. The crowded animals swim about for hours in search of pasture, and find a sparing subsistence from the rich grass which rises above the brown-coloured fermenting water. Many foals are drowned, many are caught by the crocodiles, killed by a blow from their jagged tails, and then devoured; one often sees horses and cattle which have escaped the claws of these voracious animals, and bear the traces of their sharp teeth in their thighs.

But as crocodiles and tigers here fight against horses and cattle, we also see man opposed to man in various parts of these deserts. With unnatural blood-

thirstiness, they drink the blood of their enemy, or murder him when apparently unarmed, with a poisoned thumbnail. The weaker tribes of men carefully conceal with their hands the trace of their timid foot-paths from their stronger enemies. Thus man, on the lowest stage of savage barbarism, as in the apparent splendour of civilization, always makes his life wearisome; and the same desolating picture of the hostilely-divided human race pursues the wanderer over land and sea, and the historian through all centuries. Therefore, he who longs for mental repose in the endless quarrel of nations, directs his attention to the calm life of plants, and the secret workings of holy nature; or, confiding in the inborn instinct which for centuries has glowed in the heart of man, he looks hopefully up to the high stars, which pursue their old eternal course in undisturbed harmony."

ASCENT OF THE SILLA OF CARACAS.

It was difficult to find a guide to the mountain; the hunters do not go so high, and Humboldt's intention of collecting plants, breaking off stones, and instituting barometric and thermometric observations, were things unknown here. By the intervention of the governor, some negroes were appointed to guide him. As it was the season in which two fine days rarely succeed each other, Humboldt determined to start on his journey on a day when the clouds would have lowered, and an approaching clearer atmosphere might be anticipated. The mountain ascent was commenced on the 22nd January by a company of eighteen persons, who rested for the night in a coffee plantation near a precipice. The night was very clear, and they made use of it for astronomic observations. At five o'clock in the morning, the company started again on the narrow pathway, followed by slaves who carried the instruments. They reached the promontory of Silla, called by the shep-

herds, Puerta de Silla, at about seven o'clock. The morning was fine and cool, the sky seemed to favour the undertaking, and the view was most picturesque. The guides hoped to reach the Silla heights in six hours. The noise of the waterfalls was heard, but the mountain stream could not be seen, for it was concealed beneath the thick shadows of the erythrias, clusias, and Indian fig-trees. Nothing could be more beautiful on a spot where there are so many plants with large, bright, and tough leaves, as the view down on the tops of the trees, illuminated by nearly perpendicular rays of the sun.

The way became steeper and more fatiguing; the ground was covered with short grass, which afforded no firm footing, and it was impossible to leave any footmarks in the grass. Thin vapours rose from the forests, and announced an approaching mist. They accumulated and ranged themselves as cloudy curls round the two tops of the Silla, as the forerunners of a still denser mist. Humboldt's companions lost courage, and showed some signs of beating a retreat, and the intimate garrulity of the accompanying negro creoles contrasted strongly with the solemnity of the Indians, who had been Humboldt's guides in the missions of Caripe. They mocked the discouraged guides, and made themselves merry especially at a young Capucin friar, who was, at the same time, professor of mathematics. When the travellers started, he thought, as all Europeans do, that he would surpass all the Americans in boldness, strength, and foresight; he had even taken bits of white paper with him, that he, as the foremost of the climbers, might throw them down from time to time to show the way to the less agile. He had boasted much of his boldness and perseverance, and had promised the monks of his order to fire some rockets from the top of the mountain, in order to announce to the inhabitants of Caracas an event the importance of which he alone could appreciate. But this boaster lost courage long before the creoles did, and remained all day in a neighbour-

ing plantation, whence he watched with a telescope how far Humboldt and the others would be able to climb.

The expedition moved on towards the eastern highest points of the Silla, which terminates in two round points. From the foot of the waterfall Chacaike to a height of 6000 feet, they found only cow-pastures, with two small lily-like plants with yellow flowers, and some brambles. Humboldt searched in vain for a wild rose, of which, indeed, he could only find one specimen in South America. Their journey now became very arduous on account of the fog, and because in climbing the steep and slippery ascent they had to make use of their hands as well as their feet. At a height of more than 5500 feet, the sight of a palm forest in a mountain pass formed a surprising contrast to the pastures in the valley; nowhere did Humboldt find such a variety of plants on so comparatively small a space, as in this palm forest of Pejoal, whose most interesting feature was a bush from 10 to 15 feet high, of the family of the umbelliferous flowers, which the creoles called incense (*incienso*). While Humboldt was examining the flowers, the sky grew darker and darker, the thermometer sank below eleven degrees, which, in the torrid zone, causes an unpleasant degree of cold. Through groups of Alpine plants—so called by Humboldt—they again came to a pasture-field (*savannah*), and climbed over a portion of the western point, to descend into a cleft between the two summits, called the saddle. The luxurious vegetation here made it extremely difficult to find a path, which had to be hewn with knives and axes. From time to time the clouds separated, and the travellers then saw the eastern point of the mountain, but then a dense mist suddenly again obscured the view. At every step the danger was incurred of coming upon the ledge of the tremendous precipice, and falling down 6000 feet into the sea. A halt was made, the negroes soon arrived with victuals, but the meal was very sparing, as they had only olives and a

little bread. Even the guides had lost all courage, and Humboldt had great trouble to prevent their returning.

It was two o'clock in the afternoon, and Humboldt was in hopes of reaching the eastern point before sunset, and returning early enough to rest the night in the valley between the two points. He had sent back half of his attendants, with the order to meet him on the following day, with salt meat and refreshing victuals, instead of olives. Scarcely had these preparations been made, when the east wind arose, and dispersed the clouds in less than two minutes. The two points of the Silla covered only with grass and low Befaria bushes, seemed astonishingly near. Humboldt explains the absence of high trees on the two points of the Silla, (the tree boundary in this zone being really 2400 feet higher), by the barrenness of the soil, the violence of the sea winds, and the frequent spontaneous conflagrations in this region.

In order to reach the highest eastern point, they had to approach the extremely steep precipice hanging over the sea, and the obstacles which the luxurious vegetation had hitherto opposed to their progress decreased as the travellers approached the point. In three quarters of an hour they had reached the point of the eastern pyramid, and stood 8100 feet above the sea. The prospect to the north over the ocean, to the south over the fertile plain of Caracas in a circumference of nearly thirty miles, was surprisingly beautiful. But the open view from this steep precipice, whence one can see, (though not the town of Caracas, which was concealed by the western pyramid,) a beautiful group of villages, coffee plantations, and the course of the river Rio Guayra, did not last long. Mists again obscured it, and a swarm of bee-like animals attacked the travellers. It would have been rash to have tarried near the deep precipice in this dense fog, and the retreat was commenced to the saddle, the space which divides the two points. At half-past four, Humboldt had finished his scientific observations,

and, pleased with the fortunate result of this ascent, the idea of spending the night in the saddle valley was given up. Having found the path they had hewn at the ascent, they soon descended into the palm forest of Pejoal. The night, which quickly succeeded the short twilight, overtook Humboldt and Bonpland botanizing; the moon, sometimes obscured by clouds, shone in the sky; the guides who carried the instruments, went away, one by one, to seek a sleeping place between the rocks, and Humboldt and Bonpland, overwhelmed with weariness and thirst, arrived at ten o'clock in the lower valley, by a wearisome path. After a descent of six hours, the company again arrived at the farm at the foot of the mountain. They had been watched on the summit by telescopes in the town.

THE COMBAT WITH ELECTRIC EELS.

The marshes and standing waters near Calabozo are filled with electric eels. Humboldt and Bonpland wished to make experiments in their own house with these animals, but for three days they could meet with no specimen, on account of the exaggerated fears of the people for the electric effects of these animals. Tired of waiting, and as the eel which was at last brought to them offered no satisfactory results to their experiments, Humboldt determined to go himself to this dreaded and dangerous capture. The Indians thereupon took him and Bonpland to a large reservoir of slimy water, surrounded by odorous plants, near the village of Rastro de Abazo; but it was difficult to catch the electric eels with common fishing nets, as they bury themselves with great agility in the slime. They did not wish to make use of the Barbasco root, which, thrown into the water, would have stupified all the fish in it.

The Indians now declared they would fish with horses, and not until the guides had caught a quantity of wild horses and mules, and forced them to enter

the ditch, could Humboldt and his friends form any idea of this mode of fishing. The noise occasioned by the stamping of the horses, drives the eels out of the slime, and irritates them; they swim on the surface of the water, and press themselves against the belly of the mules and horses. A strange combat now begins; the Indians, provided with long thin bamboo canes, encircle the ditch: some climb the trees, whose branches extend horizontally over the water. By wild screams and threats with their long canes, they prevent the horses coming ashore and escaping. The eels, terrified by the noise, defend themselves by the repeated discharge of their electric forces. It seems, for a time, as if they would carry off the victory over the horses, for many of the latter succumb to the force of the invisible electric blows, which the eels give on the belly, the most sensitive part, and they sink below the surface, overcome by the quantity and violence of the shocks. With bristling mane, snorting, with wild terror in their sparkling eyes, some horses rise again, and endeavour to escape, but the Indians drive them back, and but few escape the eyes of the watchful guards. If such an one, escaping from the shocks of the electric eels, reaches the land, it falls at every step, and sinks down on the sand, faint and exhausted.

In the first five minutes two horses were already drowned. The eel, which is five feet long, presses against the belly of the horses, and discharges its electricity along its whole length, which stuns the abdomen, entrails, and heart of the horse. The horse sinks down exhausted, and is drowned, because the continuing struggle of the eels with the other horses prevents its rising again.

Humboldt was already anticipating that this fishing would end in the death of all the horses, when the violence of the unequal struggle gradually abated, and the exhausted electric eels dispersed; for they require long rest and abundant nourishment to regain the strength spent by the frequent discharge of their electric organs. The horses and mules recovered from their

terror, their manes no longer bristled, and their eyes no longer glared so fearfully. The Indians maintained that if the horses were driven into the water of electric eels on two consecutive days, none would die the second day. The eels now timidly approached the shore, where they were caught with little harpoons attached to long ropes. If the ropes were perfectly dry, no electricity was felt while hauling out the fish, but it was communicated through the wet ropes. In a few minutes five large eels were caught which were only slightly wounded, and others were caught in the evening in a similar manner. This was the wonderful combat of the fishes and the horses: and Humboldt adds: that power which is the invisible living defence of these water inhabitants; which is developed by the motion of moist or unequal parts; which circulates in all organs of animals and plants; which thunderingly inflames the expanse of heaven; which unites iron to iron, and guides the calm, revolving course of the needle; all this, like the colour of the prismatic ray, flows from one source—all is resolved into one eternal universal force.

TROPIC STORMS.

The impression which a tropic storm makes upon a European, a stranger to this zone, is very imposing; the phenomena of the atmosphere are not accidental, but succeed each other in the equinoctial regions with a wonderful uniformity.

Nothing can equal the pureness of the atmosphere from December to February. The sky is always cloudless; and if a cloud appears, it is a remarkable phenomenon. The eastern and east-north-eastern breeze blows violently, and as the atmosphere it brings is of a uniform temperature, the mist cannot become visible by refrigeration.

Towards the end of February, or the beginning of March, the sky is coloured of a darker blue, the

hygrometer shows a gradually increasing moisture, the stars are sometimes veiled by a slight mist, their light is not steady, and they are occasionally seen to sparkle about twenty degrees above the horizon. The breeze blows less violently, and there is often a total wind calmness. South-south-east of the horizon the clouds gather, they seem like distant mountains with inaccurately defined outlines; they are sometimes seen to quit the horizon, and scud through the sky with a speed quite inconsistent with the weakness of the wind in the lower atmosphere.

Towards the end of March, the southern region of the atmosphere is lighted by small electric explosions; they are phosphorescent sparks, limited to a single group of mist. Now, from time to time, south-west winds occur, lasting some hours, and are the sure signs of the approach of the rainy season, which begins towards the end of April in the Orinocco district.

The sky then begins to be clouded, the clear blue disappears, and a uniform grey colour takes its place. At the same time, the warmth of the atmosphere increases, and not only clouds, but dense mists, cover the vault of heaven. The howling monkeys make themselves heard several hours before break of day; the atmospheric electricity, which, during the dry season from December to March, had nearly always averaged 1.72 lines of the voltaic electrometer during the day, becomes extremely variable, being sometimes 0, sometimes 3.4 lines.

The rainy season is also the season of thunder-storms. The storm commences two hours after the passage of the sun through the meridian, a short time after the period when the heat has reached its maximum. The thunder is rarely heard in the night or in the morning; but these thunder-storms are altogether only confined to certain river districts having a peculiar climate.

VOYAGE ON THE APURE.

On account of the monotony of the steppes, Humboldt preferred to sail into the Orinocco on the river Apure. He hired for the purpose a broad vessel called a piroge, which was navigated by a steersman and four Indians. The Apure harbours many fish, sea cows, and tortoises, and its shores swarm with birds; the river grows gradually broader, the shore on one side is sandy and barren, on the other grown with high stemmed trees. Humboldt was now in a territory little known by man, and exclusively inhabited by tigers, crocodiles, and chiguires. Sometimes the stream was bordered by woods on both sides; these woods commenced with bushes of sanso, which forms a hedge four feet high, and behind them grew a kind of paternoster or Nicaragua wood. Tigers, tapirs, and pécaries had broken passages through the hedge to come to water at the stream. Where the flat shore is rather broader, and the sanso hedges grow a little farther from the water, the space between serves as a resting-place for the crocodiles, and eight or ten were frequently seen lying immovably on the sand, with their open jaws extended. The journey had scarcely begun, and Humboldt knew that many hundreds more would lie in the slime of the savannahs! Besides this, the Indian rowers assured him that a year rarely elapsed in which two or three grown up people, generally women, coming to draw water at the stream, did not fall a sacrifice to the crocodiles. In these deserts, says Humboldt, where man lives in constant strife with nature, the conversation turns much on the means by which one can escape the pursuit of a tiger, a boa or a crocodile; every one prepares to meet the threatening dangers. The crocodile lets loose its prey if one presses its eyes with the fingers, and a young girl had lately escaped from the grasp of the animal at San Fernando by this means, with the loss only of the forearm, which it had bitten off. The

crocodile of the Apure is quick and sudden in attack, and makes a curious noise as it runs, which seems to proceed from its scales beating against each other. They run straightforwards, but they can turn very well; Humboldt often saw young ones biting their own tail. Only when swimming against the stream it finds a difficulty in turning, and the large dog which accompanied Humboldt escaped from a crocodile by quickly turning round against the stream.

Near Joval, where the country grows more and more wild, Humboldt saw a large tiger lying in the shadow of a zamang, one of its paws resting on a just caught chiguire (about the size of our pigs). The zamures (a kind of vulture) had approached to share the remnants of the feast, and came to within two feet of the tiger, but the least movement sent them terrified away. When the boat of the travellers approached, the animal hid behind the sanso bushes, and the vultures tried to seize the opportunity to devour the chiguire, but the tiger, in spite of the vicinity of the boat, leaped among them and carried his prey off into the wood.

Lower down the stream they saw a whole herd of chiguires from which the tiger had probably taken his victim; they did not seem to fear human beings, but ran away and dispersed at sight of the large dog which accompanied the travellers; so slowly did they run, however, that two of them were caught.

Humboldt and his companions spent the night, as usual, in the open air. The next morning, on the 1st April, they passed a flat island below Joval which was inhabited by innumerable flamingoes, spoonbills, fish-bills, and waterfowl. The next night the travellers spent on the barren shores below Vuelto del Cochino, and the thick forest was so impenetrable, that there was scarcely sufficient dry wood to be obtained for the Indians to make a fire as a protection against the tigers. The night was calm, clear, and moonlight, the crocodiles were lying on the shore looking towards the fire, whose brilliancy seems to attract them as

much as fishes and crabs. The Indians found the traces of three tigers in the sand, of which two seemed to have been very young; Humboldt supposed that it was a female tiger who had brought her young to water.

For want of trees the oars were fastened in the ground, and the hammocks swung to them. All was quiet until eleven o'clock in the night, but then such a fearful noise arose in the neighbouring wood that sleep was impossible. Of the number of voices of wild animals which sounded at the same time, the Indians, who were with Humboldt, distinguished only those separately audible, such as the low flute-like tones of the sapajo, the sighs of the alonates, the scream of the tiger, the conguar, the muskrat, the sloth, the hocco, the parragua, and some other fowls. As soon as the jaguars approached the boundaries of the forest, Humboldt's dog howled and crept beneath the hammocks. Sometimes, after a long pause, the tiger's voice was heard from the trees, followed by the sharp continuous scream of the monkeys escaping from the danger.

The security which the Indians seemed to feel inspired Humboldt and his friend Bonpland with courage. They listened to the accounts how all tigers dread fire, and never attack a man lying on his hammock, and the case is indeed very rare. The noise which the animals make, seems to arise from a quarrel among them. The jaguars pursue the pekaris and tapirs, who fly in crowded herds. The monkeys, startled by the noise, respond to the cry from their trees, and thus the inhabitants of the forest are awakened one after the other, and the whole menagerie is in an uproar.

The next morning (April 2nd) Humboldt went on board his ship again, the river being crowded by quantities of porpoises. At noon the travellers halted in a desolate spot. Humboldt relates:—"While the boat was dragged ashore, I had separated from the company, and was walking along the banks to watch

a group of crocodiles. The animals slept in the sun, and were so lying that their broad scaly tails rested against each other. Little snow-white herons perched on their heads and backs, as if they had been trunks of trees. I had been looking only towards the shore, when, on lifting up some scales of mica, abounding in the sand here, I perceived the fresh footprints of a tiger, and, at eighty paces distant, saw an immensely large jaguar lying beneath the foliage of a ceiba tree. There are circumstances in life when it is impossible to reason. I was much alarmed, but had self-possession enough to proceed onwards without running, and to avoid any movement of the arms. I perceived that the jaguar was fixing its attention exclusively on a swimming herd of capybaras, I therefore commenced my retreat in a long round towards the shore, gradually hastening my steps. How often was I tempted to look back to see if I was pursued! Fortunately I did not do so till late, and then saw that the animal had remained immovable. The wild beasts here are so well fed that they rarely attack men. I arrived breathless at the vessel, but the Indians to whom I told my adventure treated it with great indifference. However, when they had loaded their guns, they accompanied me and Bonpland to the spot where I had seen the tiger. We did not find him there, and did not deem it advisable to pursue him into the wood."

The next night, Humboldt and his companions again spent on the shore, opposite the island Conserva. The lighted fires again attracted the crocodiles, and a female jaguar approached the river to water its young. The 4th April was the last day spent on the Apure. The insects began to torment dreadfully, especially the zancudos, whose proboscis is so long that it penetrates through hammock and garments. The next day Humboldt's vessel, after safely avoiding the shallows caused by the long drought, gaily entered the long desired Orinocco.

SCENES FROM THE ORINOCO VOYAGE.

Humboldt landed upon an island which is celebrated in the country for its turtle fisheries, and which the mission Uruana considers as its property. There was a company of above three hundred persons of several Indian tribes congregated here, who slept beneath huts of palm leaves, each tribe on separate encampments. There were also some white people, merchants from Angostura, who came to purchase the oil of the tortoise eggs from the natives.

Humboldt and his companions seemed suspicious characters to the missionary, and the object of their journey very mysterious.

"Who will believe," he said, "that you have left your country to be consumed here by mosquitoes, merely to measure lands which do not belong to you."

Humboldt could only satisfy his doubts by the recommendation of a father guardian of a Franciscan convent, and by the presence of the brother-in-law of the Statthalter of Varinas, who had accompanied him on the journey on the Orinocco.

Here Humboldt saw the manner of the tortoise catching. The great Arran tortoise lays its eggs at the time of the lowest water, always beginning at night, immediately after sunset. The animal digs a pit two feet deep and three feet broad, whose sides it is said to cement with its urine. The impulse to lay its eggs is so urgent, that some tortoises make use of the holes which others have dug but not filled up again, and lay a second layer of eggs over the first. The number of the tortoises labouring on the shore is so great, that morning sometimes surprises them at their incompleted work. But although they move away quickly, they can easily be caught by hand. The egg gatherers investigate the situation and extent of the egg deposits with a long pole. When the pole is pressed perpendicularly into the soil, the suddenly ceasing resistance reveals the soft soil on which the eggs lie. The eggs are gathered with a metho-

dical regularity. According to the number of Indian tribes, the soil is divided into certain districts, for the deposits of eggs are found three feet deep, 120 feet from the shore. When they have sounded with the poles, the Indians dig up the soil with their hands, and break the eggs into wooden troughs filled with water, and expose them to the rays of the sun until the yellow, upper, oily part thickens. This oil is then boiled separately, and if none of the eggs contained embryo tortoises, it is very pure and of an agreeable flavour. A space on the shore 120 feet long and thirty feet broad, gives 100 ships' jars full of oil (from 1000 to 1200 cubic inches) and 5000 eggs are required to make one jar full. But as one tortoise lays at the utmost from 100 to 116 eggs, and about one-third are destroyed before they can be collected, 330,000 tortoises are required to produce the thirty-three millions of eggs which afford the above quantity of oil.

Where the Orinocco suddenly turns northward near San Fernando, it breaks through a portion of the mountain ridge. Here are situated the great waterfalls of Atures and Maypuros, and here the bed of the river is narrowed in by immense masses of rock. The stream surges along the eastern precipices; an extensive grass plain extends between the two hills, the rocks Kari and Oco, which rise like mountain-fastnesses from the old river bed of the bay, which was once filled by the Orinocco like a sea, and presented a magnificent prospect. The northern end of the waterfalls is characteristically called the sun and the moon in the language of the aborigines. The rock Kari has its name from a luminous white spot, in which the Indians perceive a remarkable similarity to the moon. Humboldt was not able to climb the steep rock, but supposed the white spot to be an immense piece of quartz in the dark granite. Opposite the Kari rock, on the basaltic twin rock of the island of Quivitari, the Indians show with secret admiration a similar disk, Camosi, which they worship as the

image of the sun. The geographical situation of the rocks may have contributed to their naming, for the Kari stands westward, the Camosi eastward. The waterfalls of Maypuros do not consist, like the cataract of Niagara, in the single fall of an immense volume of water, nor of narrow passes through which the stream flows with increased velocity, like the Pongo of Manseriche in the Amazon, but it presents a countless number of small cascades which rise, ladder like, above each other, and are formed of a real archipelago of little islands and rocks, which often lie so thickly together on the eight thousand feet broad bed of the river, that scarcely twenty feet of navigable water is left. Every rock or step is from 2 to 3 feet high, the most notoriously dangerous, called Purimaximi and Manimi, are nine feet high, and yet the Indians venture to ride down the stream through the waterfalls in a slight boat, and when they go up the stream they swim in advance, throw a rope with infinite dexterity round a rock projecting from the surge, and then draw up the vessel, which is generally filled with water or turned over. The boat is often dashed to pieces on the rocks, and the boatmen then endeavour to save their bleeding bodies from the waves by reaching the nearest shore. As the real fall of water, according to Humboldt's measurement, is only from 28 to 30 feet, the dreadful noise and wild tossing of the waves is not the consequence of the fall, but of the counter-current, which is caused by the form and position of the rocks.

As Humboldt was descending to the bed of the river over the rock Manimi, he enjoyed a splendid view over a foaming surface miles long, from which black rocks projected. Every rock, every islet rising above the water's surface, was ornamented with luxurious high forest trees, and a dense mist floats eternally over the falls. Through the cloud of foam the point of the palm trees is seen, and when the ardent evening sun was reflected in the moist mist, it presented an optical painting like an ethereal picture, in

the splendidly-coloured rainbows which were formed and vanished again in varying succession. The water during the long rainy season, has washed earth on to the bare rocks which project, and on which now various plants, especially silver-leaved mimosa and drosera grow. In the distance the eye rests on the long mountain chain Cunarami, which terminates suddenly in a blunt cone shining with a red light in the setting sun.

It surprised Humboldt that the noise of the current was three times stronger in the night than by day, a feature, by the way, peculiar to all European waterfalls. But in a desert, where the quietness of day is never interrupted, and is equal to that of night, another reason than this contrast must be discovered, and Humboldt believes that the warm air of the day does not conduct the waves of sound so well as the nocturnal cold air, on account of the unequal elasticity.

Humboldt, and his friend Bonpland, ventured to pass the last half of the waterfall of Atures, also, with the laden boat. The two bold travellers first landed several times on the rocks which connect the single islands in the current-like dykes; sometimes the waves dashed over these dykes, sometimes they fell with a dull sound into their basin, and found an outlet through subterranean canals, while the golden rock hen nestled on the dry rocks. The two travellers crept into one of these caves, lying under the rocky dykes; its damp walls were covered with confervas and luminous bissuth, and over their heads the torrent rushed with a fearful noise. As the Indians had left them in the middle of the waterfall to circumnavigate a small island in their boat, and were to take them up again at the lower point of the island, they were obliged to spend an hour and a half on this rock in a dreadful storm. The night had already commenced to set in, and they in vain sought shelter from the rain under the cleft granite. The little monkeys, which they had carried on their wanderings for

months in wicker baskets, attracted the crocodiles by their screams, and thereby refuted the assertion of the Indians that crocodiles had never been seen in the cataracts, confiding in which assertion Humboldt and Bonpland had even several times ventured to bathe.

The storm increased; wet through and stunned by the thunders of the cataract, they waited anxiously for the arrival of the Indians with the boat. At last, they came, having sought for navigable water for a long time.

Humboldt now visited the notorious cave of Ataruipe, situated at the southern entrance of the waterfall of Atures. Not without risk of falling, did Humboldt and his friend climb the steep wall of granite, and they would not have found a footing on the smooth surface, if large crystals of feldspar had not projected from the rock. But they were rewarded with a splendid view at the summit; before them was the shining water, from which fertile hillocks projected, and westwards, beyond the river, immeasurable fields of verdure. But in the immediate neighbourhood everything was bare and narrow, and the vulture and the screeching goat-sucker soared solitary over the deep valley. The back ground of this rocky valley is overgrown with close bushes, and in this shaded part lies the notorious cave, the grave of an extinct nation. The travellers counted above 600 well-preserved skeletons, which were lying in square baskets, made of the stalks of palm leaves, and of which, neither rib, hand, nor foot-bone was missing. Near the skeletons stood urns about 3 feet high and $5\frac{1}{2}$ broad, made of half-burnt clay, with crocodile or serpent-shaped handles, and these urns seemed to contain bones of entire families. Most of the skeletons did not seem above 100 years old, and the tradition in this neighbourhood is, that the brave Aturians, pursued by the cannibal Caraibes, had fled to the rocks of these waterfalls, and had perished here. . . . Humboldt left this cave at night, taking with him

several skulls and one complete skeleton.* They parted in solemn silence from this mysterious cemetery; it was a fine and cool night, the moon, surrounded by coloured rings, stood high in the air, and illuminated the mist which, cloud-like covered the surging river. Innumerable insects radiated a reddish phosphorescent light over the plants, which glowed with living fire. Climbing bignonias, odorous vanillas, and golden banistorias, ornamented the entrance to the cave,—over the dead the summits of the palm trees rustled.

The catholic missionary of San Fernando had brought his Indians to the shores of the Guaviare, on a hostile expedition, which was, in reality, a chase of human beings, equally opposed to the laws of religion and humanity, and to those of the Spanish government. On this unchristian expedition, a mother with three children, of which two were yet infants, were found in an Indian hut. They were occupied in the preparation of Manioke flour; the father was fishing, and could, therefore, not defend his family from the hostile man-hunters and Christian oppressors. The mother endeavoured to escape with her children, but had scarcely reached the savannah when she was overtaken by the man-hunters of the mission, she and her children pinioned and dragged to the shore. The missionary was watching the success of the enterprise from his boat. If the mother had made a violent resistance, she would have been cut down by the kidnappers, for everything is permitted in the missions, when they go out "soul catching." They always prefer to take children and rear them as slaves to the Christians.

The mother was brought to San Fernando with her children; they hoped she would not be able to find

* Blumenbach subsequently cast one of these skulls, but the skeleton was lost in the before-mentioned shipwreck.

her way back to her home by land. But her maternal heart longed for those children, who had accompanied the father on the day she was carried off. In despair she, with her children, made several attempts at flight, but was overtaken, mercilessly whipped, and, at last, separated from her two infants. She was taken up the river Atabo into the missions of Rio Negro. Loosely bound, and not knowing what fate awaited her, she sat in the forepart of the vessel. She succeeded in breaking her bonds, sprang into the water, and swam towards the left shore: the current drove her against a rock where she hid among the bushes. But the missionary landed his Indian servants, the miserable woman was brought back, cruelly scourged, her hands bound fast behind her back, and thus she was dragged to the Christian mission of Gavita. It was the rainy season, and the nights were dark; on account of the impassability of the forests, the rivers are the only means of communication between village and village. Maternal love urged the chained woman to attempt the apparently impossible, for she felt but the one desire to liberate her children, and take them back to the others at home.

She was unwatched—as her arms were bleeding, the Indian servants of the Christian missionary had from pity, secretly loosened her thongs; with her teeth she separated them entirely. The next morning she had disappeared, and was seen four days after, near San Fernando, where her children were imprisoned in the mission. She had passed through the woods at a season when the sky is always covered with clouds, and the rivers overflowing; she had often been obliged to swim, often to make her way, bleeding, through the prickly bushes, and had lived only on large black ants. The Christian missionary rewarded her unheard of courage by imprisoning her in a mission on the Orinocco, where, despairing of seeing her beloved children again, she refused all food, and died.

Humboldt could not look without emotion on the rock, on the western shores of the Atabo, where the woman had endeavoured to escape; it is called the "rock of the mother" to this day. Humboldt exclaims: "if man scarcely leaves a trace of his existence in these deserts, the name of this rock, an imperishable monument of nature, will remain as a memorial of the moral perversity of our age, of the contrast between the virtue of the savage, and barbarism of civilized men. This is to the memory of a victim of the bigotry and savageness of miserable wretches, who called themselves servants of a religion whose first command is love of one's neighbour."

ASCENT OF THE CHIMBORAZO.

When Humboldt and Bonpland had arrived at Quito on the Magdalen stream on the 9th January, 1802, they devoted themselves for nearly nine months to geological and botanical investigations of this district. They wished also very much to ascend Chimborazo, considered to be the highest mountain on the earth, and for this purpose excursions were made to the snow covered tops of the Andes, especially to the points of Antisano, Cotopaxi, Tunguragua, Pichincha, and Chimborazo.

Two unsuccessful attempts to reach the crater of the volcano Pichincha had been already made, when they at last twice succeeded in making experiments and observations here. Humboldt did not find the crater cooled and filled with snow as a former traveller had done, but inflamed and preparing for a volcanic eruption. When Humboldt subsequently brought this information to Quito, which is only four or five thousand toises distant from the crater, it excited universal lamentation in the town, from fear that an approaching eruption of the Pichincha would be dangerous for the inhabitants of Quito.

But this visit to the volcano had nearly cost Hum-

boldt his life. When he arrived at the top, he proceeded onwards over the snow to cross a deep chasm, not imagining that the bridge over this chasm consisted only of a fragile layer of frozen snow. At the first step he sank, and would have been lost had not adequate assistance been at hand. Higher still than Pichincha, in the cordilleras of the Andes, lies another crater called Cotopaxi, which interested Humboldt all the more because it is the highest active volcano of the modern world. It is 17,892 feet (2952 toises) high, therefore, if the Brenner of Tyrol were placed on the top of the peak of Teneriffe, the two together would only be the absolute height of the Cotopaxi. The whole district fears this volcano as a most dangerous enemy, for its eruptions have always been extremely desolating in their effects. In the year 1738 the flames rose 462 toises in circumference above the brim of the crater; in 1740 its roaring was heard at a distance of 200 miles, at Honda, on the Magdalen stream; in the year 1768 it ejected so many ashes that the air was darkened, and the nocturnal darkness lasted till three o'clock in the afternoon, so that the inhabitants of Hambata and Tacunga were obliged to go on the streets with lanterns; and in 1803, after Humboldt had been there, it spread great alarm by one of the phenomena preceding the eruption, namely, that all the snow suddenly melted, evidencing a dreadful heat of the crater.

In order to reach this dangerous volcano, Humboldt took the way south-east of the town of Quito, in the Andes. It was a journey of twelve (German) miles. The form of the mountain was majestic, colossal, and very regular in its cone. The tops, covered with a brilliant mantle of snow, shone in the setting sun in beautiful colours, and no irregularity of the soil, no rock or stone intercepts the radiance of the white surface. Humboldt only remarked some single dark pieces on the extreme verge of the crater, which, like those on the peak of Teneriffe, resembled a wall or rampart.

The weariest part of the ascent was the entourage of the mountain, which consists of rocks and chasms continuing up to the snow boundary. This boundary begins already at an elevation of 2460 toises, and is 533 toises broad to the crater. It was not possible for Humboldt to reach the brim of the crater. On the south-western side the regularity of the cone is broken by a mass of rock half buried in the snow, which the natives call the head of the Inca. It is said to have been originally the real point of the Coto-paxi, but to have been blasted and thrown down at its first eruption.

As he could go no further on this side, Humboldt went to the volcano of Antisano, to reach the utmost practicable height of the extreme point of the Chimborazo. He and his companions had already ascended to a height which before them no one had reached, when, on the 23rd June, 1802, he arrived on the Chimborazo, and succeeded in bringing the instruments so high. He was then 3036 toises above the level of the sea, and suffered the consequences of the great rarefaction of the air. The thermometer stood still, as the mercury in it had frozen, and as mercury only freezes at 32 degrees Réaumur, or 40 degrees Celsius, the reader may form an idea of the cold to which Humboldt and his companions were exposed. The rarefied air made respiration very difficult; and as the circulation of the blood in the human body requires a pressure of air from without, to impart a certain degree of imperviousness to all the fibres and veins, the bold travellers soon felt the want of this pressure by the blood flowing from their eyes, lips, and gums.

But in sight of the extreme point of Chimborazo, only 224 toises higher, the difficulty of respiration and the flow of blood could not deter Humboldt from continuing his journey. Nature, however, drew a boundary to oppose the progress of the courageous man. A broad, insurpassable chasm gaped before him, and separated him physically from the top of the Chimborazo, towering proudly above him.

When they were already far away, the Cotopaxi sent a thundering adieu after them. We have already mentioned that Humboldt found this crater, which had been dead since 1768, and had since then not even ejected smoke or a visible vapour, quite hot, and had by this news excited great depression and terror in the town of Quito. He had already departed, and was in the port of Guayaquil, distant fifty-two miles in a straight line from the mountain, when he heard the roaring of the Cotopaxi, like a cannonading, night and day, and was even pursued by this fearful noise of the crater near which he had lately been, as far as the south sea, south-west of the island de la Puna. He afterwards heard that the subterranean fire in this mountain had been so violently developed in a single night, that the thick snow covering, 533 toises in breadth, had suddenly disappeared, and that at sunrise the usually snowy portion of this immense peak was covered with glazed lava, which towered threateningly over the terrified population of the district.

VEGETABLE LIFE.

The carpet which a fertile flora spreads over the naked surface of the earth is unequally woven; it is closer where the sun rises higher in the never-clouded sky, and looser towards the sluggish poles, where the returning frost nips the budding blossom or the ripening fruit. But the plants necessary for the food of man are found everywhere.

If a volcano divides the boiling tide at the bottom of the sea, and suddenly projects a lava rock, the peaceful lithophytes build their cellular dwellings upon it, and after thousands of years they raise it to the surface of the sea, die, and leave a flat coral reef. The organic forces are now immediately at hand to vivify the dead rock. Whether migratory birds, or winds, or waves of the sea suddenly bring the seeds, is difficult to ascertain, from the great distance of the coast.

But in the northern regions, as soon as the naked rock comes into contact with the air, a tissue of velvety fibres is formed upon it, like a coloured spot, darkening gradually, and affording the foundation for a new stratum of the organic tissue. Where high forest trees now stand, frail lichens once covered the earthless rock. The history of vegetable life, and its gradual distribution over the bare earth, has its epochs, like the history of the subsequent human race. But although the plenitude of life is everywhere developed, although organization is ceaselessly working to reunite the elements, released by death, into new forms, this plenitude of life and its renewal differs according to the difference of the zones.

Nature is suddenly torpified in the frigid zone, for fluidity is the condition of life. Animals and plants are here buried for months in their winter torpor (except mosses and other cryptogamia). On a large surface of the earth only such organic creations have developed themselves as are capable of withstanding a considerable absence of caloric, or a long interruption of the organic functions. But the nearer we approach the tropics, the more the variety and grace of form and colouring, the freshness and force of organic life increase. This may be doubted by those who have never left our quarter of the world, or have neglected the study of geography. If we descend from our thick oak forest over the Alps or Pyrenees to Italy or Spain, or cast a glance at the African coasts of the Mediterranean, we should easily form the erroneous opinion that absence of trees is a characteristic of hot climates. But then we forget that southern Europe bore a different aspect when the Pelasgian or Carthaginian colonies first settled there; we forget that the early civilization of the human race dislodges the forests, and that the revolutionary spirit of nations gradually robs the earth of those ornaments which gladden us in the north, and which, more than any history, proves the infancy of our civilization.

But besides this, in all countries bounded by the Mediterranean, a great portion of the earth's surface is bare rock. The picturesque character of Italian landscapes consists principally in the lovely contrast between the infertile bare rock and the luxurious vegetation which rises island-like upon it. But where this rock is less split, and retains the water on its surface, which is then covered with earth, as the lovely shores of the lake of Albano, there Italy has its oak forests as shady and green as the denizen of the north could desire. But if a district has once lost its vegetable covering by inundation or volcanic revolutions, if the sand lies undisturbed and without springs, if the hot air rising perpendicularly hinders the fall of the clouds, then ages elapse before from the green shores a new organic life penetrates into this desolation. He, therefore, who can survey nature at a glance, and deduct the consequences of local conditions, sees how organic force and richness increase with the increase of the vivifying warmth from the poles to the equator, and how yet every zone has its peculiar beauties. The tropics have variety and size of the botanical formations, and the north has the sight of fields, and the periodic revival of nature at the first spring-breezes.

Although the character of a district depends on all its visible phenomena, although the form of mountains, the physiognomy of plants and animals, the blueness of the sky, the form of clouds and transparency of the atmosphere, complete the total impression, the vegetable covering always remains the chief feature in this impression. The animal organization wants mass, and the mutability of the individual often withdraws them entirely from the scene; but the vegetable world impresses by its immovable grandeur, its masses show its age, and in plants alone are age and ever-renewing youth co-existing. The finite life of the animal world, although it more affects our feelings of goodwill or aversion, always remains foreign to the physiognomy of a

district: this is produced solely by its vegetable development. The agricultural nations artificially increase the prevalence of social plants, but with it, in many parts of the temperate and northern zones, the monotony of nature; they also destroy wild growing plants and cultivate others, which always follow men on distant pilgrimages. The luxurious tropics, however, successfully withstand all these violent revolutions of creation.

TROPICAL SKETCH.

In the mountainous districts near the equator, the diversified character of nature has attained its climax. In the deeply indented Andes of New Granada and Quito, we can see all formations of plants, and all stars of the heavens, co-equally. One glance takes in heliconias, high-topped palms, and above these tropical creations, oak forests, mespilia, and umbellifera, as in our native land. One glance takes in the Southern Cross, the Magellan clouds, and the principal stars of the Bear, which revolve round the north pole. There the earth and the two hemispheres of heaven display the entire abundance of their various forms; there the climates, and the botanical zones induced by them, are ranged above each other; there the laws of heat become clearly intelligible to the attentive observer, for they are graven in indelible characters on the rocky walls of the Andes, on the precipices of the mountains; and if the tropical countries are more impressive by the richness and luxuriance of nature, they are also especially calculated to show the regulated order of space, as it is reflected on the earth by the uniform regularity of the meteoric processes of the atmosphere, and by the distinct classification of natural forms, with a perpendicular elevation of the soil.

In the hot plains, which do not rise high above the level of the South Sea, abundance of pisang plants, of

cycadaceous and palm-like formations flourish; then follow the tree ferns, shaded by the high valley walls; and then come the cinchonias, in luxurious strength, being constantly watered and refreshed by the cool cloud-mist; they give the long mis-appreciated, now so useful Peruvian bark. Where the high tree-formation ceases, there azalias, thibaudias, and myrtle-leaved andromedas grow in close groups. The Alpine rose of the Cordilleras, the resinous befaria, forms a purple belt above them. Then, in the region of storms, the higher bushes and large-leaved plants disappear entirely, and paniced monocotyledons uniformly cover the ground, forming an immense field, shining with its yellow light. Here the camel-goat, and the cattle introduced by Europeans, graze in solitude. Where the naked rocks of trachyte project from the grassy plain, there, in the absence of clayey soil, only plants of the lowest organization can grow, such as the host of lichens, which the rarefied atmosphere sparsely nourishes, parmeliias, lecideas, and the many-coloured perisperm of the Leprarias. Islands of newly fallen snow hide the last developments of vegetable life, to where the boundary of eternal snow is sharply defined. The subterranean forces endeavour, but generally in vain, to break through the white, probably hollow, bell-shaped summits. Wherever they have succeeded in coming in contact with the atmosphere by round kettle-shaped craters, or long, narrow chasms, they scarcely ever eject lava, but only oxygen, sulphurous vapour, or hot water vapour.

..... "When I indulge in personal recollections of great natural scenery, I think of the ocean, when in the mildness of tropical nights the firmament pours its planetary mild starlight over the gently undulating surface; or of the wooded valleys of the Cordilleras, where high palm stems break through the dark roof of foliage, and stand as a gallery of pillars—a forest above a forest; or of the peak of Teneriffe, when horizontally floating clouds separate the top from the lower earth, and, suddenly torn by a rising current of

air, the eye from the edge of the crater rests on the vine-covered hills of Orotava, and the Hesperidean gardens of the coast. In these scenes lies the calm, creative life of nature, its quiet working; in them is shown the individual character of the scenery—a mingling of the outlines of clouds, sea, and coast, in the virgin form of islands; there is beauty of vegetable form and grouping. For the irregular, the terrible, even in nature, everything which exceeds our power of comprehension becomes a source of enjoyment in a romantic scenery. Imagination has full scope for its creations in that which cannot be perceived by the senses; its influence is different at every change in the temper of the observer. We erroneously believe we take from the outer world what we ourselves have put into it.”

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THE SEA.

. . . “Whoever is roused to intellectual independence, and builds his own world within himself, must be excited by the view of the free, open sea, the majestic picture of boundlessness. His eye is enchained by the distant horizon, where dimly, like a mist, water and land unite, where stars descend and reflect themselves in the waters. A shade of melancholy longing mingles with enjoyment of this eternal change, as it always does with human pleasures. . . . A peculiar partiality for the sea, a grateful recollection of the impressions which the mutable element made upon me between the tropics in calm nocturnal repose, or when excited by the struggle of nature, determine me to speak of the individual enjoyment of the prospect, before mentioning the beneficial influence which contact with the ocean undoubtedly exercises over the development of the intelligence and the character of many nations; over the multiplication of the ties which unite the whole human family; over the possibility of attaining to a knowledge of the formation of earth; and over the progress of astronomy, and of all mathematical and physical sciences. Since Columbus

was sent to unchain the ocean, man has been able to move more freely in intellectual regions."

EARTHQUAKES.

. . . . "The impression which the first earthquake, even if it is unaccompanied by subterranean noise, makes upon us, is an inexpressibly powerful and quite peculiar one. This impression is not, I believe, the consequence of our recurrence to pictures of desolation which are present to our imagination from tradition and history. What moves us so powerfully is, the disappointment of our inherent faith in the repose and immutability of the firm, solid earth. From our childhood we are accustomed to contrast the moveable element of water with the quiescence of the soil on which we stand. All the evidences of our senses have confirmed us in this faith. When now the soil suddenly quakes, a secret power of nature appears mysteriously, as an active force, moving the immovable. A moment destroys the illusions of a life. We are undeceived as to the repose of earth, and feel transported within the sphere of destroying, unknown powers. Every sound, the least agitation in the air, excites our attention. We scarcely trust the ground on which we stand. The strangeness of the occurrence produces the same anxious uneasiness in animals. Pigs and dogs especially are overpowered by it; the crocodiles of the Orinoco, generally as dumb as our little lizards, leave the agitated bed of the river, and rush howling into the forests. To man, an earthquake appears as something omnipresent, unbounded. We can escape from an active eruption, or from a lava-stream flowing towards our dwelling; but during an earthquake, wherever one flies seems the hearth of destruction. This condition of the mind is, however, not of long duration. If a series of faint earthquakes follow upon each other, the inhabitants no longer feel any trace of fear. On the coasts of Peru, where it

never rains, the inhabitants know neither hail nor the rolling thunder and flashing lightning of the atmosphere. The atmospheric thunder is there replaced by the subterranean sounds which accompany the earthquakes. Long custom, and the universal opinion that dangerous earthquakes occur only two or three times in a century, have had such an influence that slight agitations of the earth cause no more alarm in Lima than a hailstorm would in the temperate zones.

The subterranean sounds, if unaccompanied by any sensible earthquake, make a peculiarly deep impression, even on those who have for some time inhabited a volcanic soil. They wait anxiously for what is to succeed the subterranean thunder. The most curious and quite singular example of uninterrupted subterrestrial sounds, without any trace of earthquake, is afforded in the phenomenon which is known in the Mexican highlands, by the name of the roaring or subterranean thunder of Guanamato. This celebrated and rich mining town, lies far from any active volcano. The noise had been heard for more than a month since midnight, the 9th January, 1784. It seemed as if heavy thunder clouds were lying beneath the feet of the inhabitants, and in which, slowly rolling thunder alternated with short thunderclaps. It was confined to a small space a few miles distant; on a basaltic soil nothing was heard. Thus the chasms open and close deep in the bowels of the earth."

AURORA BOREALIS.

. "Deep in the horizon, in the region where it is crossed by the magnetic meridian; the clear blue sky is obscured. An apparently thick fogbank is formed, which gradually rises to a height of eight or ten degrees. The colour of this dark segment plays into brown or violet. Stars are visible in this region of the firmament, seemingly obscured by a

dense smoke. A broad, but brightly luminous arch of light, first white, then yellow, bounds the dark segment. But as this luminous arch rises subsequently to the smoky-grey portion of the horizon, it is not merely a contrast with the brighter portion. In the extreme north, very near the magnetic pole, the smoky portion of the sky is less dark, and sometimes does not appear at all.

“The unsteady and scintillating luminous arch, sometimes stands for hours in the horizon, before any rays or groups of sparks separate from it, and rise to the zenith. The more violent the discharges of the aurora borealis are, the more actively do the colours play from violet and bluish-white, through all the shades, to green and purple. Magnetic columns of fire rise from the luminous arch, sometimes alone, and mingled with black rays, like dense smoke; sometimes simultaneously from opposite points of the horizon, uniting in a scintillating sea of fire, whose splendour no description can portray, as its waves of light change and vary in form and colour every moment. This motion increases the brilliancy of the phenomenon. The rays at last unite in that point of the firmament, answering to the direction of the magnetic needle, and form what is called the crown of the aurora borealis. But this crown is rarely perfect, and always immediately precedes the termination of the northern light. The rays then grow shorter, rarer, and more colourless, the crown and the arches of light fade, and soon after, the sky is only covered by irregularly grouped, broad, pale, almost ash-grey, immovable spots. They also vanish, before the trace of the dark smoke-like circle standing deep in the horizon is lost. At last nothing remains of the whole scene but a white thin cloud, feathered at the edge, or separated into small round divisions.”

L I F E
OF
WILLIAM VON HUMBOLDT.



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LIFE

OF

Friedrich Wilhelm Christian Karl Ferdinand

WILLIAM VON HUMBOLDT.

greatness, 1767-1835

TRANSLATED AND ABRIDGED FROM THE GERMAN

OF

Gustav SCHLESIER,

BY JULIETTE BAUER.

LONDON:

INGRAM, COOKE, & CO., 227, STRAND.

MDCCCLII.

LIFE

OF

WILLIAM VON HUMBOLDT.

CHAPTER I.

WILLIAM VON HUMBOLDT was born in Potsdam, on the 22nd of June, 1767, his father being at the time chamberlain to the Princess Elizabeth of Prussia. The genealogy of the family, the childhood of the gifted brothers, which was spent in Tegel, the family estate, situated near Berlin, and the sketch of their boyish studies, have been detailed in the biography of the younger brother, which precedes this life, and it will suffice, therefore, if we pass quickly over these years, and commence our account from the period when the paths of William and Alexander diverge. Their first tutor was Campe, who left them to preside over an educational establishment in Hamburg, and whose place was then filled by Kunth, who remained the friend of his pupils through life. He entirely superintended their education after the death of their father, and developed their extraordinary talents by the assistance of the first professors in every branch of knowledge, then resident in Berlin. It is interesting to our purpose to know who first introduced William to a knowledge of the ancient languages and literature, as the love for classical antiquity formed

the basis of all his subsequent studies, and characterized him through life. The foundation of his profound Greek studies was laid by Löffler, the author of a very free work on the new platonism of the Fathers of the Church, who was at that time field-chaplain to a regiment of gendarmes, and who was subsequently appointed chief councillor of a consistory, in Gotha. The brothers spent the period before their departure for the university, principally in Berlin, and not in Tegel, as the capital afforded opportunities for hearing private lectures from the most distinguished men, and for other studies, which might suitably prepare them for academic life. At this period, when the studies of the brothers were all in common, and their peculiar talents had not yet become prominent, William was distinguished by a sentimental ideality of character, which accompanied him through life, although it was generally, in subsequent years, governed and overshadowed by the mightier qualities of his genius. At the period of his youth, sentimentality of feeling, and an exalted enthusiasm were the order of the day, and Goethe's *Werther*, and Schiller's "*Don Carlos*," had only increased that tendency. It cannot, therefore, be a matter of surprise, that Humboldt was at this time, excessively sentimental. He literally revelled in feelings, wished to improve himself and others, and joined associations, which, for that purpose, entered into self-examining and explaining correspondence, conducted in a secret cypher, or in Hebrew characters. The years of his youth were influenced by this harmless, searching sentimentality, which united in its sphere the charms of friendship and tender affection, with those of scientific investigation.

This tendency followed him to the university, and nearly all his friends, such as Steiglitz, the Count Dohna-Schlobitten, even Kunth the tutor, took part in these sentimental friendships and mutual improvement alliances; the love of association, and of secret societies, being as prevalent at this period, as sentimentalism.

Female society also tended to strengthen this quality in William von Humboldt; by accidental meetings, he became connected with the most distinguished women of the age, such as Mdle. de Briest, afterwards Madame de Rochow, and then de Fouqué, under which name she has published many novels; Rahel, celebrated for her letters, and of Henriette Herz, the still surviving widow of Professor Marcus Herz, who was as celebrated for her beauty as for her mental attainments. With her, Humboldt entered into the most intimate friendship and confidential correspondence.

But qualities diametrically opposed to this sentimentality, were at the same time developed in Humboldt's character, namely, a calm and cold reason, cutting satire and irony, quiet humour, a most cultivated dialectic power, a universal love of research, of investigation, of argument, and of discussion, in short, everything which subsequently so characterized his being, that the sentimental feature of his character remained unsuspected by many. We shall even find that he frequently, in social intercourse, purposely concealed his feelings, and even adopted an entirely opposite character.

But such momentary coldness was, therefore, by no means intentional or deceptive. An incident in his university life gives us a remarkable example of this fine feeling concealing itself behind humour or self-negation and united to an admirable strength of soul. He was bathing one evening, with his friend Steiglitz, in the Leine, near Göttingen, and was carried away by a current; after resisting for some time in vain, he thought himself lost, and called out: "Steiglitz, I am drowning, but it does not matter." His friend, however, at once leaped into the water, and saved him. Humboldt subsequently describes his sensations; they were those of the tenderest and noblest friendship for Steiglitz, and of affectionate remembrance of distant beloved ones; but nothing of this appeared in his immediate expressions; he joked and laughed as he walked home in the light of the moon, with the friend

who had saved his life. In later years, also, when he counted the most distinguished men among his friends, the personal expression of his esteem remained ever cold and measured, although in letters he is frequently affectionate and enthusiastic enough. This is quite right. Love and esteem were established as unalterable facts, which were proved by his whole life, but which he preferred to avoid expressing verbally.

The calm investigating spirit formed an essential feature in his character, and was probably confirmed by constant intercourse with such men as Engel, Biester, David Friedländer, &c., who were all clear-headed, free-minded thinkers. With such friends, Humboldt could cultivate his natural talents, and if he excites admiration by the precocious boldness of his thoughts, he probably ascribed his own early development, partly to his friendship with these men, whose æsthetic narrowness has, fortunately, however, not influenced his nature.

Besides the advantages of a beautiful family estate, of the care of an excellent and gifted mother, and of opportunities for enjoying the best education in one of the most lively capitals of Germany, we must not omit to mention the state and the man under whose protection the brothers Humboldt entered on their course of life. Frederic the Great still lived; he inspired all his subjects with heroism and patriotism, and was ever present to the youthful imagination of William and Alexander as the highest ideal of a hero and a king. He died in 1786, as they were on the point of quitting Berlin for the university. With the death of the great king a period of decadence and internal corruption commenced in the Prussian state, and it was therefore a fortunate circumstance for the brothers Humboldt that they left Berlin at that time, and cherished the untarnished noble impressions of their youth ever present to their souls. They were thus qualified to become the models of a better generation on their return, and when the fatherland required men with energy and power to pull down and rebuild,

then the name of Humboldt was foremost among those summoned to the arduous task.

The brothers entered on their university life together, and proceeded to Frankfort-on-the-Oder, where they devoted themselves principally to the special studies for their intended future courses. William heard lectures on jurisprudence, and Alexander attended those on political economy. Among the men with whom William von Humboldt formed a lasting friendship in Frankfort, we may mention especially the Count Alexander of Dohna-Schlobitten, who was subsequently associated with Humboldt in an endeavour to revive the educational establishments in Prussia. Count Dohna met the brothers Humboldt again in the university of Göttingen, whither he proceeded in 1788.

William and Alexander seem to have left Frankfort for Göttingen in the spring of 1788, and to have remained in this latter place about two years. Göttingen was at that time acknowledged the first of the German universities, for Leipzig and Halle had already sunk in public favour, and Jena only rose to fame between 1790 and 1800. No place could have been more advantageous for Humboldt's studies than Göttingen, for it has always been the seat of historical and archæological science, and is so to this day. Here HEYNE taught—a man who has done much for the restoration of archæology, and who may be termed the immediate forerunner of its most brilliant epoch. The brothers enjoyed his hospitality, and appreciated it, and, beside the influence which he doubtless exercised over their studies, they owe principally to him their friendship with his son-in-law, George Forster, which probably arose in the course of this summer.

The ardent spirit of Humboldt found abundant means for improvement in Göttingen, and what was not attainable by lectures was furnished by the splendid library of the university. He devoted himself with especial ardour to archæology, and to the study of the Kantian philosophy. While pursuing these

studies he still took part in those of his brother, and thus extended his love for universality of knowledge more and more, without detriment to the profundity of his learning, which was as great as its universality. His studies embraced languages and art, nature and life.

Among his university friends ranks the medical student already mentioned as having saved his life, Johann Steiglitz, who subsequently attained to great eminence in his profession, and as a critical author; also the well-known associate of Count Schlabrendorf, *Oelsner*, who spent the principal part of his life in Paris, and A. W. Schlegel, famed in Germany as the translator of Shakspeare. Humboldt remained in Göttingen for some time after his studies there had been concluded, and corresponded with some of the most distinguished men in literature; he also made it the central station on several shorter and longer journeys, which he undertook to extend his knowledge and his connexions. But Göttingen was the last stage of his youthful education, and the starting-point of his virile activity. What a list of great and distinguished men have proceeded from the Giorgia-Augusta school! The name of Humboldt will certainly not be the least important among them, and both brothers have often in after life gratefully acknowledged that they received the noblest part of their education in this celebrated high school.

As we have now arrived at the period when the youth Humboldt grows into the man, and takes his place among the intellectual rulers of the world, we will cast a glance at the unusually favourable exterior circumstances under which he was born, and which accompanied him through life. A lucky star seems to have presided at his birth, to have granted all his wishes, and fulfilled all his desires. The great talents he possessed were adequately developed by the most favourable worldly circumstances, and whatever could conduce to the improvement of such high natural abilities, was procured with the most discriminating

care. But Humboldt would probably have been as great without this care, for the love of self-improvement was one of the strongest impulses of his soul. His mind was open to all impressions, and the only requirement of such a mind was to begin and end his life in a period of progress and of great events, and this also fell to Humboldt's lot.

Having formed his taste and judgment by the study of the ancients, he became the intimate friend and adviser of the two great pillars of German literature, Schiller and Goethe, and although he never produced such brilliant works, his name must be intimately blended with theirs, from the influence he exercised on the opinions and the productions of these two great German poets.

The revival of philosophical science by Kant also took place during the youthful years of Humboldt's life. This new system made a great impression upon him at a very early period, and he adopted it in the strictest sense of the word. It remained the basis of his thought, and served him as a guide, even when he went beyond it. He is justly counted among those who extended the boundaries of this system of philosophy, partly by the æsthetic researches which he prosecuted in conjunction with Schiller, partly by the establishment of a philosophy of language which we owe to his studies in this direction. In political life, also, his star did not desert him, but permitted him to take part in the so urgently required re-organization of the fatherland, in conjunction with the most honoured names of the age, and to quit this sphere at the right moment, when nothing more could be expected but loss of the achieved honour and reputation. And in the leisure moments of his old age he devoted himself to linguistic and comparative researches, and became as great and important on this field as his brother is on the field of natural history.

Humboldt's character is mirrored in the choice of his friends and in his friendships; the highest, greatest, and noblest minds were intimately allied with him.

He was formed for love and friendship, spent a great part of his life in confidential intercourse with chosen spirits, and remained throughout life true to those on whom he had once bestowed his affection, his esteem, or his confidence. He was the same in happiness as in misfortune; and above all, he kept holy the impressions of his youthful years. The names of G. Forster, F. A. Wolf, Schiller, Goethe, recur frequently in Humboldt's life. They illustrate and exalt his glorious personality, and his name shines as constantly in the annals of their life.

But above every feeling of friendship rose that of fraternal love. In it the tenderest and most affectionate sensations were blended on both sides, and the noblest confidence, the purest esteem characterised the brothers throughout the long course of their lives, when united or separated. Only two feelings were perhaps higher still than this sentiment, that which subsequently united William to his wife, and his love for Schiller. To meet these two again was the thought which alone occupied his mind in his last hours.

We must now resume our account of Humboldt's life, and return to his stay at Göttingen. In the autumn of 1788, he made a journey on the Rhine, and spent four days in the company of Forster, who had some time before taken up his residence in Mayence, as councillor and librarian to the university there. He describes these four days as the happiest of the whole journey, and felt as gratified as surprised by the affectionate kindness he met with. Forster's wife, afterwards the wife of the author Huber, took a lively interest in the discussions of the men; Humboldt calls her one of the first of women, and remained her friend until his death. Forster himself gave the talented youth a letter to F. Jacobi, the philosopher, whom Humboldt did not neglect to visit.

Such a celebrated personage was important and instructive for our young Humboldt, who could not fail to be interested, for a time at least, by a man who constituted himself the opponent of Kant, and

the subsequent systems of German philosophy, and who, although unable to create an equally important philosophic system, was, as a feeling thinker, so prolific in hints and warnings against the logic and scholastic errors of the systematisers. Opposed to Jacobi, Humboldt did not now show himself an exclusive Kantist, for he placed the thinking individual higher than the system, and much in Jacobi's manner pleased him, especially the harmony which pervaded his thoughts and appearance, and his peculiar mode of introducing his ideas by artistic illustrations.

On the 31st October, Humboldt arrived in Pempelfort, the well-known hospitable village near Düsseldorf, where Jacobi used to spend the summer months of the year, and on the 8th September he was at Göttingen again. Immediately on his return he writes to Forster, thanking him, first, for the kind reception which had made his stay in Mayence so agreeable. He says in his letter; "It is a great and noble pleasure to receive attention from men whose head and heart command our esteem, and in how high a degree you afforded me this gratification! I cannot tell you how deeply and gratefully I was affected by the kind manner in which you received me on my first introduction to you, and by the confidence which you afterwards reposed in me. Be assured, dear friend, that it will never be forgotten, and that the wish will ever live within me to be able one day to show you that I am ever striving to be more worthy of such kind and friendly sentiments." He then relates the impressions of his journey, or rather only those which Jacobi made upon him. From Mayence he went down the Rhine to Aix-la-Chapelle and Düsseldorf. In Aix he remained ten days, because Dohm, who was formerly his teacher, would not let him leave sooner, fearing that he would not see him for some years. Humboldt, however, met him in the following year, but afterwards not again for twenty-five years. He then continues:—"Jacobi received me with the greatest and most

unexpected kindness, with a friendliness of which I might have been proud had I not known that I owed it solely to your recommendation. I lived with him, but without your interposition he would hardly have taken such interest in a Berlin man, as I am, with a friend of Engel, Herz, Biester, and so many anti-Jacobites. I am deeply grateful to you for the connexion, for his society was highly interesting to me. He is a remarkable thinker, rich in new, great, and profound ideas, which he expresses in a spirited and eloquent manner ; his character seems to be so noble that I cannot discriminate whether he has won my heart or my head."

This is the oldest letter of Humboldt's which we possess, and his subsequent letters to Forster show the same admiration for Jacobi's character and learning, although he frequently combats his assertions in his correspondence with him. In a letter written to Forster about this time, he criticises an essay which Forster had written on English literature. He says : "Essays on literature have their difficulties. If the supply of materials is scanty, they are meagre and unsatisfactory ; if it is great, as I think yours was, it is difficult to make a right selection, and the writer runs the risk of producing a mere catalogue of names. Therefore your essay seems to me to be masterly. It seems to run so smoothly in an artfully spun thread, and yet the reader does not anywhere detect the art which has been necessary to spin it. I was especially pleased by the manner in which you show the influence of the British national spirit on the literature. A knowledge of the most modern authors of a country and of their writings, is certainly very interesting, but the reflecting reader desires more ; he will know why the authors in this country write in such a spirit and in no other, why certain branches of literature flourish and others are neglected. And this, I think, you have shown excellently. The account of the religious condition of England is written in a spirit in which I would like to see much more written."

After the summer of 1789, Humboldt was rarely in Göttingen, but spent his time in longer and shorter journeys in and out of Germany. He visited Hanover, where he was personally known, principally with the intention of meeting with Friedrich Jacobi, and spent five days here very pleasantly, visiting few families, and passing the principal portion of his time with Jacobi and other eminent men residing in Hanover.

In such consideration and intimate relation stood the youth of twenty-two, with men who at that time were foremost in the ranks of literature and science. His letters contain an inexhaustible treasure of characteristic sketches and of unfailing judgment, of which, however, our space forbids an extended insertion, and it must suffice if we merely point to them as the best evidences of the greatness of the man.

Very soon greater events than literary debates in the lively circles of a small German town were to occupy our hero. The political crisis in France had arrived, and the revolution commenced. The victory of the people was decided by the taking of the Bastille.

Few in Germany had anticipated and watched the state of things in France with greater enthusiasm than Campe, the first tutor of William and Alexander von Humboldt. He had been living for some time in Brunswick, where he had an agreeable official post, and, at the same time, presided over a bookselling establishment, and gained an increasing popularity as author of many juvenile books and accounts of travels. He frequently travelled for the benefit of his health, and now determined to proceed to Paris, to be present at the funeral of French despotism. He was soon ready, and found a travelling companion in William von Humboldt, for whom it was of great interest to see Paris at this period, especially under such favourable auspices.

Campe has published an account of this journey in letters to his daughter, from which we shall quote.

Two friends, he states, wished to accompany him, and the three met in Holzminden on the 18th July. The next morning they started in the best possible humour. Their first night was passed in the bathing place of Driburg. It was past midnight when they arrived, and they went out with lanterns to see the country. Campe congratulated himself on the choice of his companions, and says: "One should always travel thus—young with old, and old with young people. The old ones would gain in good humour and merriment, the young ones would be protected against excesses. You cannot think how merry we three are even in such situations where others would hang their heads. Wherever we arrive we communicate our good temper to the whole household, and even to the beggars in the streets. Laughing we arrive, laughing we transact our affairs, laughing we mount our carriage again, and every one laughs with us."

They travelled through the uninteresting districts of Westphalia, and crossed the Rhine at Uerdingen, and before they arrived at the boundaries of Brabant they received the news of the terribly great events of the 12th, 13th, and 14th July. The decisive blow had been struck. The intelligence, which reached them at Aix-la-Chapelle filled them with delight at the brave Parisians, but with disappointment that the drama at whose commencement they wished to be present had already begun. French fugitives crossed the boundaries; in Liege the news came that disturbances had broken out in Brabant, through which province they were to travel, and that at Brussels the excitement was only subdued by the presence of the military. This sounded very dangerous, but not to them. Their desire to watch the nation's struggle for liberty, and its manly endeavour to regain its rights, was too strong not to outweigh all considerations of personal inconvenience.

On the 3rd August they arrived in Paris and took up their residence in the Faubourg St. Germain, rue des petits Augustins, and the next day entered at once

into the excitement of the city. Their stay has been accurately detailed by Campe in his works, and we shall therefore merely mention the principal incidents. They spent their days in seeing what was remarkable in Paris, mixed with the people, and listened to the speeches and debates held in the public streets, returning to their dwelling late at night, tired and exhausted. On the 12th August they proceeded to Versailles, and succeeded in obtaining a place in the crowded galleries of the National Assembly, through the intervention of the great Mirabeau, at whose special invitation Campe had gone to Paris. The uproar was so tremendous that it was some time before they could hear the speeches; when the session was over they spent the remainder of the day in seeing the splendours of Versailles.

Provided with an introduction to the officer of the National Guard on duty, they were shown to a good place again on the following day. Towards noon the Assembly were to present an address to the king, and our travellers succeeded in joining the procession of deputies, and thus being present at all the ceremonies. In the evening they returned to Paris by way of Marly. A few days later they went on a pilgrimage to Rousseau's grave. They saw his room, in which the furniture was still arranged as when he lived, but found his grave and his favourite resting places very much neglected.

It cannot be doubted that Humboldt made many new acquaintances among the literary men of the day even during this excited time, and we see from his letters that "the honest Mercier," Herr von Meister and Berguin, the author of several books for children, received them with especial attention. Of other learned men whom he met with, he names the great astronomer Lalande, the academician Marmontel, and the philologist Villoison, the best French archeologist, with the exception perhaps of Barthelemy. But the period appointed for their visit to Paris had now elapsed, and they quitted it reluctantly on the 27th August, re-

turning homewards by way of Champagne, Metz, and Mayence.

Humboldt's enthusiasm was not so great as that of Campe, and he left France with far less glowing expectations for the future. Forster writes to Jacobi some days after the return of the travellers; "The wanderer William Humboldt is here still, and although he speaks no longer of Parisian—not Paradisaical—freedom, still he helps us to season life, which without such seasoning would indeed be very insipid."

Humboldt intended to spend the remainder of the summer in a journey to the Upper Rhine, Suabia and Switzerland, as he wished to neutralize and temper the effect of the political excitement and super-civilization of Parisian life on his mind by intercourse with his intellectual friends, and in the enjoyment of nature. Before he could leave Mayence, however, he was partly drawn into the paper war at that time existing between the Berlin philosophers and Forster, Jacobi, and others, on account of supposed secret jesuitical societies, which had ostensibly been discovered, and were the occasion of the display of much liberal intolerance. Humboldt exerted his influence to temper the acerbity of party animosity, and induced Forster to modify many of his tirades.

His journey through Switzerland was beautifully recorded in his letters to Forster. Men and scenes are graphically and poetically described, and every letter is a splendid specimen of his philosophy.

From Mayence Humboldt travelled over Mannheim to Heidelberg, remaining two days in Mannheim. Iffland, the hero and ornament of the stage there, was absent, and Humboldt regretted his absence the more as he wished to make his personal acquaintance. The theatre was not good, although *Emilia Galotti* was performed. The ladies, who were tolerably good performers, failed, to his idea, to give the noble simplicity of *Emilia* and the great mind and deep feeling of *Orsina*. In the picture gallery few pieces attracted

his admiration, among these principally a head by Carlo Dolce.

From Heidelberg, probably on the 28th of September, he wrote to Forster, "Do you think sometimes of the fortnight I spent with you? It was perhaps the happiest period in my life, and the remembrance of it even yet affords me great enjoyment. I harmonize with no one as I do with you; and it is my great pride that all this came of itself without exterior aid, that I owe your friendship only to yourself; for it shows me that you deem me worthy of you, and you can indeed not feel how much that thought is to me. For you cannot know how I admire the fruitful profusion of ideas which occur to you on every occasion, the lively clearness with which you express them; how I honour your zeal for the good and the true, and your consideration for what others esteem good and true; and how tenderly I love the heart which so readily opens itself, and gladdens others by love. And yet you should know all this, in order to feel fully what you are to me."

In Heidelberg he remained some days, and made some new friends, and proceeded thence to Tübingen, whence he writes, on the 28th September, of the impression which the scenery of Heidelberg made on him, in words which may rank with the best descriptions which poets have made of this singularly beautiful spot, in prose or verse. "The view from the castle of Heidelberg pleased me more than any other I had seen in these districts. The shores of the Rhine below Mayence, even where they are most beautiful, near Bingen and St. Goar, have always a certain uniformity, always vinebergs or naked rocks; and the neighbourhood of Mayence is pleasing enough, and varied, but does not form a whole. But at Heidelberg, the neighbouring high mountains on the shores of the Neckar, with the town at their base, form a great and beautiful group. There is true character in this view, and the impression it leaves on the soul is profound and enduring."

From here, he went by the extremely beautiful path along the windings of the Neckar to Heilbronn, on the way to Stuttgart. Here he visited Professor Abel, one of the clearest heads in the philosophical world, who held an appointment at the academy there. He also made the acquaintance of Reuss, the professor of political economy; of Schwab, the father of the poet; of the librarian Drück, and of the poet Schubart. With Schwab and Abel he seemed much pleased, but says little of the others.

From Stuttgart, Humboldt went by way of Tübingen to Constance, and arrived in Zurich in the commencement of October. He wrote to Forster about one person only he met with here, but it is such an interesting description that we cannot refrain from inserting it. "Doubtless," he writes to Forster, "Lavater interests you most of all my acquaintance here. I spent several hours daily with him; and as he did not interrupt his usual occupations on my account, I saw him in so many characteristic situations, that I had full opportunity for observing him. My expectations were great, in consequence of what Jacobi had told me of him, and from several of his productions, which seemed to me to bear traces of deep and original genius. I anticipated a profusion of new, great, suggestive—even if only half-true or dreamy—ideas. But I was disappointed; and not only disappointed because I had expected so much, but because I found so little. I could have numbered the interesting ideas which I heard from him during the fortnight, and I would be ashamed of comparing to it a single day spent with Jacobi or yourself. Here and there he shows a free and acute perception; but his mind is too narrow, and has neither the restless activity with which real geniuses seek the undiscovered but supposed truth, nor the fertile eagerness with which they seize it when found. Constant allusion to himself, vanity, the expression of stupid and insipid sentiment, playing on words, waste his strength. This would probably all be different if he possessed real

erudition, if he had only thought more of the ideas of others, or if he still read more. But he lives only in his own ideas; and his occupations, which I have now had frequent opportunities of observing, are principally trifling, such as the regulating his physiognomic charts, his judgments expressed in single, generally lame hexameters, correspondence, the execution of an infinite number of trifling commissions for all kinds of people, occasional poems, &c." It seems, indeed, surprising how much he thought of the exterior form. Humboldt describes and details the pedantic arrangements of Lavater's room, the number of cases with letters, superscriptions, &c. On several of them names were pasted. "I found many of my friends there, principally females. In these cases he puts such of his works which may interest the person. He gave me the portfolio bearing the name of one of his lady friends, with whom I am also intimately acquainted, to read. What did it contain? Nothing but partly pietistic, partly sentimental poems, all utterly devoid of ideas, neatly copied on fine paper, with an engraved border." Humboldt could not perceive why he spent so much time on mere form. His most interesting conversations with him were upon physiognomy, on German authors, and on the standard by which intellectual productions are measured.

But if Humboldt was disappointed with the prophet of Zurich, he was all the more delighted with the splendid views on the Zurich lake. He proceeded from there to Zug and Luzern, and then made pedestrian excursions into the Oberland of Bern. The weather was beautifully clear, and not a cloud obscured the highest mountains. He went through the well-known valleys and passes to Spital, in the valley of the upper-bar, with the intention of ascending the Gothard, but a snowstorm forced him to return. He writes to Forster: "I spent very happy days in these wild districts. Never was my soul so filled with such great images of irresistible, all-annihilating force, such obstinate, unconquerable strength; the feeling of a

countless course of past centuries never was so present to my soul, and never had such a view of eternally-distant, destroying and re-creating futures dawned upon me. When I sometimes looked upwards from a narrow enclosed valley, to the highest unascendable summits of the mountains round me, my soul was overpowered by ideas of solitude, of loneliness, by glances into the far distance from those giddy heights, by anxious expectation of what might be beyond those mountain summits; and then the present, the tangible, the certain, vanished from my soul, and only the past, the future, the distant, and the uncertain, floated before my excited, dreamy phantasy. My dear Forster, we must, some time, make a real mountain journey together. It is less expensive and less tedious than a journey to England, and must be equally important to you as naturalist."

From Spital Humboldt went to Bern, thence to Geneva and Lasanne, where he was hospitably received by the councillor de Rougemont, and proceeded from there to Basle. There are unfortunately no accounts existing of this no less interesting part of his journey. From Carlsruhe he wrote on the 29th November to Forster, whose family had been increased by the birth of a little girl:—"I rejoice that the sight of the new-born maiden has induced you to choose the softer name of Clärchen, instead of the barbaric boy's name you intended to adopt from the Anglo-Saxons and Northmen." Humboldt seems to have been averse to the real northern element. This element in Shakespeare, and a certain roughness connected with it, may have been the reason that he was less intimate with his works than with those of the ancients and of his native poets. He speaks with great delight of Ariosto in his æsthetical essays, while he rarely mentions Shakespeare.

In the beginning of December our traveller returned to Mayence. Forster accompanied him to Frankfurt, where they separated, and never met again in life. While Humboldt, in his love for liberty, always

maintained a dignified calmness, and held the greatest merit to consist, not in immediate action, but rather in personal and individual development, Forster was carried away by political agitation and was destroyed in its currents.

CHAPTER II.

OTHER scenes are now presented before us. The various connexions of our youth of twenty-two are increased by new and more important ones, and love springs up in the heart so long devoted only to friendship.

In the winter 1789—1790, Humboldt spent some time in Erfurt and Weimar, and this stay was important in its results on his whole future life, for here he made the acquaintance of the coadjutor Von Dalberg, of his future wife, and of Schiller. Of the coadjutor Von Dalberg, Humboldt had the highest opinion, and said of him :—"The longer I have the opportunity of associating with Dalberg, the more I feel convinced of the purity of his intentions, and the excellence of his moral character." But another house in Erfurt formed at that time a centre of hospitality and good society, and became a great attraction to Humboldt, namely, that of the Chamber president C. F. von Dacheröden. This family belongs to the old Saxon and Thuringian nobility, and have their estate, which bears their name, a mile beyond Mühlhausen on the river Unstrut. The Herr von Dacheröden in question, a relative of Von Dalberg, had formerly been vice president of the Prussian chamber at Halberstadt, and was married to a Baroness Posadowsky, heiress of Burgörner, a large estate in the Prussian part of the Duchy of Mansfeldt. One daughter was the fruit of this marriage, and the most careful education had been bestowed upon her.

Dacheröden had, at the period referred to, retired from his office, and his house in Erfurt was the resort of the best society of the place, and of all the eminent men who visited the town.

Caroline von Dacheröden, the daughter, was the future wife of William von Humboldt. She could not be esteemed perfectly beautiful, for her figure was even slightly deformed, but her head was truly fascinating, and her eyes of an admirable brilliancy and expression. She was, however, more distinguished for her intellect, which was of an order rarely met with in women, and formed to be understood and appreciated by a William von Humboldt. She seemed made for him. The sentimental and feminine part of his nature, which in outward life he suppressed, here found its right focus, and the tenderest devotedness on his part was amply repaid. To a rich and tender heart she united such a masculine education that she was afterwards able to read the ancient Greek poets with her husband in the original. She seemed at the same time born to be the life of society, so that wherever she went the best and highest natures crowded around her, and her house was always the seat of the highest intellectual life. Over Humboldt her influence from the first moment during her life and beyond it was irresistible; when she was dead his days were devoted to her memory. To her he dedicated a whole collection of sentimental sonnets, in which the emotions and thoughts of the latter years of his life have been preserved to us.

Owing to her, Humboldt formed several new connexions, and, above all, the lasting one with Schiller. Caroline von Dacheröden was intimately acquainted with two sisters, the Mesdemoiselles von Lengfeldt in Rudolstadt, of whom one was married to a Herr von Beulwitz and afterwards to the Freiherr von Wolzogen, while the other had shortly before been betrothed to Schiller; these formed a circle of friends who remained true to each other through life. Schiller, who had been appointed to an extraordinary

professorship in Jena, which he hoped would enable him to marry in the course of the following year, frequently visited Weimar, where his betrothed was then living with her sister, Frau von Beulwitz, and it was in Weimar where he and Humboldt first met. Their first meeting soon ripened into a more intimate acquaintance, which ended in one of the noblest friendships, exercising a beneficial influence on both. Two natures, such as Schiller and Humboldt, could not fail soon to understand each other, and the desire for a fruitful intellectual life subsequently induced Humboldt to live several years in Jena. When he left that place he remained in constant correspondence with Schiller.

After his betrothal, Humboldt did not remain long in Weimar and Erfurt, as he intended to pass through a probationary course in Berlin, and then procure an appointment in the government, after which he proposed celebrating his marriage.

Among the other important acquaintances which Humboldt must have made this winter, is that of F. A. Wolff. The latter was at this time a newly-risen star of archæology in the university of Halle, and passed through Erfurt at the period of Humboldt's stay there.

We find it nowhere recorded whether Humboldt visited Göttingen this winter, or how long he remained there. In the summer of 1790 we find him in Berlin, whither he returned after the completion of his studies and of his first travels, with the intention of entering into the lists of public life. His brother Alexander was at the same time travelling through the Netherlands, France, and Germany, in the company of Forster.

William could not have been pleased by this stay in Berlin, as Frederic the Great had been succeeded by a regent, who by no means followed in the footsteps of his predecessor. Immorality, wastefulness, a reactionary, childish policy, and a hypocritical pietism, were the order of the day. Society was demoralized

to the lowest ranks, and much suffering had to be endured before real enthusiasm could again be revived among the people. It may easily be imagined what Humboldt's feelings were when he returned to Berlin under such circumstances, with the intention of entering upon a public career. But he found his beloved mother and many old friends and acquaintances, in whose society he cultivated his talents, and made his first attempts at authorship in Biester's *Monthly Journal*, to which such men as Herz, Engel, Friedländer, &c., contributed. Among the women who at that time exercised an influence over the intellectual world of Berlin, and in whose society William von Humboldt took a prominent position, were Henriette Herz, the wife of the above-named Marcus Herz, and the reflecting, truth-seeking Rahel Levin, who, by her remarkable letters, has become for us the representative of the great intellectual revolution of that period. In their saloons Humboldt made the acquaintance of all the great men then in Berlin,—among them, Schleiermacher, the most unbending thinker of the romantic epoch, Gentz, who, spite of the great difference in their opinions, became a friend of Humboldt, and of many others.

But his entrance into the business of life occupied Humboldt's time principally in this and a portion of the next year, so that he could devote but little of it to correspondence with distant friends. Forster writes to Jacobi (26th Dec., 1790): "The Humboldts are both well, but both in a different manner. The eldest is councillor of legation, and at the same time attaché to the high court of Berlin, where he is making his trial session. When his year is past, he will take office in Halberstadt, and probably marry. The younger one is in Hamburg, studying the practical part of bookkeeping, he philosophizes there, has visited Christian Stolberg and is full of his praise, goes out to collect mosses which grow in winter, and writes amusing letters full of wit, good nature, and sentiment. The eldest is still the excellent man he

always was." And on the 6th August, 1791, he again writes to Jacobi about these brothers, when William had determined to give up official life and devote himself exclusively to his own higher studies:—"Alexander Humboldt is in Freiberg and begins to die off for me. William is dead to me long ago; he intends to marry Caroline von Dacheröden, in Erfurt, and is, in his present humour, going to retire from all public activity, which, with his talents, is much to be regretted. Alexander wants to do all the more, but has not physical strength enough for it."

Humboldt indeed began at this period to be lost to his more distant friends, although he never quite dropped these relations so dear to him, and resumed them again when his retirement from public life left him more at leisure to follow the requirements of his head and heart. His correspondence with his betrothed was probably uninterrupted during the whole time of his absence, but his acquaintance with Schiller was as yet superficial, and seems not to have become more intimate till after 1791, when they lived at less distance from each other. Alexander left Hamburg in the spring of 1791, visited his mother, brother, and friends in Berlin, and then proceeded to Freiberg in July of the same year, where he studied geognosy and mining operations until March of the following year.

But the elder brother was also anxious to quit Berlin as soon as possible, for he could not feel at ease in his office under the rulers of the day, although he is wisely silent on this subject in his letters. He could not hope to be able to prevent much evil or to effect much good, and although his friends wished him to remain at his post to be ready if affairs should take a different turn, he could not determine upon such a course. He wished to marry and live in his family circle, and also to give more time to his studies of life and men. Philosophy did not seem sufficient to him for this purpose, and his former philological studies had convinced him that for his views completeness of

scientific cultivation could only be found in a thorough and fundamental comprehension of the old, and especially of the Greek, world and literature. For this, several years of perfect leisure from business were requisite, and where better could he find this than in the stillness of country life, sufficiently retired from the excitements and dangers of the capital, on one of the large estates of his father-in-law which were already almost his, surrounded only by the happiness which the love and the society of a congenial wife affords. It was principally the longing for such a complete self-education which induced the young man to quit for the present the important public sphere opened for him. He resigned his appointment, and left Berlin in the summer of 1791, and only kept the title of a Prussian councillor of legation. Ten years—longer probably than he at first anticipated—he spent in scientific and literary activity and in travels. This was perhaps the happiest period of his life, and most important in its fruits! The whole richness of his fertile genius was developed in undisturbed and observing retirement; the most eminent representatives of science and literature visited him in his solitude and influenced his future labours, and he was able, from his secure retreat, to watch the increasing misery of political life, and the unfortunate issue of the French revolutionary struggle. His happy destiny preserved his activity for a better period.

Humboldt was married to Caroline von Dacheröden, in July, 1791. The happiness of this alliance was an important element in Humboldt's fortunate life, but the merit of this happiness is owing in no small degree to himself. All the force of will and good intentions, of which Humboldt was capable, centred in this point. When he had attained the certainty that Caroline von Dacheröden was to be his wife, he immediately made the vow to make her happy under any circumstances. He never forgot this vow during his whole life, and fulfilled it faithfully to the best of his ability. But it needed not the compulsion of a

vow, every day he would anew and voluntarily have entered into the engagement, which never ceased to be his only bliss. When the beloved wife was dangerously ill in her first childbed, and the medical men were fearful of the consequences, Humboldt believed that he would not be able to endure life after the terrible loss, and in his anguish, gave as a reason for his suicidal purpose, that he could not know whether the beloved one might not stand in need of him in the future life. During the long years that his wife lived with him on earth, and constituted his greatest happiness, this zeal continued in every circumstance of life, to the complete negation and forgetfulness of self, sacrificing even privileges which would seem inseparable from such an excess of love. But he enjoyed the happiness of knowing the tenderness of his heart to be reciprocated, and the tenderness of his own heart beamed upon him clothed in feminine grace. Judging from some letters of Madame von Humboldt, which have been published, we should call her a romantic genius, as opposed to him whose mind was imbued by the spirit of the Ancients. Her education, nay, her erudition, not even her partiality for intellectual pleasures and for art, could outweigh the eminently feminine qualities of her soul. She had a particular partiality for paintings and for music, while Humboldt, in other respects so varied and artistic in his mental acquirements, had no taste for the peculiarly feminine art element, that of tone—in which he resembles the great critic Lessing. The feminine feature of his mind is always concealed by the strength of his reason, so that it bears a manly character. His wife speaks of her eldest daughter once in a letter to Rahel Levin, and concludes with the very characteristic words: "She has something harsh and tender, at the same time, in her character, and, in this, resembles her father." But the sentimentally tender element in Madame von Humboldt's character appears in an appropriate feminine form, still sufficiently modified to bear the stamp of sense

and reason. This romantic feature was combined with the most peaceful cheerfulness, and her truly feminine gentleness was joined to a real strength of soul. When Humboldt lost his eldest son in Rome, Schiller at once felt convinced that the afflicted mother would rise above this heavy grief. He wrote to his friend at the time: "A strong soul with a fine, tender sensibility, is certainly the happiest gift of Providence, it has been granted to her, and so she will be able to bear the unalterable." Humboldt thought the description very apt, and replied: "Her nature has remained true to itself, even in this crisis. There is nothing sullen or darkly melancholy in her: as you justly observe, dear Schiller, she is a strong soul, with the finest, tenderest sensibility." And, from all letters and other testimonies which we have, she always appears as a loving, tender mother, and as an affectionate and anxious nurse.

In society she occupied a no less prominent position. She possessed all the qualities of mind, grace, amiability, and conversational power, which could make her the central attraction of an extensive circle, and possessed them in such a high degree that she compensated for any wants of her husband in this respect. Humboldt was master in the art of social intercourse, but practised this quality, in its attracting or repellant form, so arbitrarily and so consciously, that one involuntarily approached him very warily, and would have frequently, without this caution, been much disappointed. Humboldt only gave himself, frankly and freely, to a few favourite friends, and esteemed fellow-students. Indifferent persons had frequently to feel his superiority, or his temporary aversion, in supercilious sarcasm or veiled irony, without being in the least able to oppose the skilful master in the art. But his wife was, on the contrary, a thoroughly social character, born to shed love and friendship in the richest profusion. In the early portion of their married life, when Humboldt lived only for science, literature, and a very select circle of congenial friends, she

had not much opportunity of showing these qualities, which appeared more fully when her husband again entered on public life, and the most extended circle had access to their hospitable house. There she appeared always as the reigning spirit, while he, whose sphere was more the public and universal interest, followed his own inclinations and purposes in social life. This was an important part she had to play, for she thereby also smoothed the path on which her husband laboured. In Jena, already, and to a greater extent subsequently in Paris, Rome, Vienna, Berlin, and Tegel, the house of Humboldt was universally known as the centre of intellectual and social life, as the "*point de ralliement*," as she herself calls it, for natives and foreigners. Her house was open to every man of mind and talent, even without a recommendation. If Madame de Staël and Madame de Recamier are named as those who, in the most social country in Europe, were the point of union for the intellectual life in modern times, we may mention as their equals, among German ladies, Madame von Humboldt and Rahel Levin, who, in the absence of qualities which made a Staël shine, have other advantages which perhaps only German women of such eminence possess. Varnhagen von Ense says, in his "Gallery of Pictures," "The amiability of mind and character, the high degree of social cheerfulness, and the great and noble activity which distinguished this charming woman during a highly-fortunate life, are still too fresh and too highly cherished in the memory of all who knew her to make any mention of it necessary." It would certainly have been a great acquisition for us, if the varied life of Madame von Humboldt had been recorded in letters such as those of Rahel. Such a memento would have cast a still brighter light on Humboldt's character, and might have enabled us to give to those recollections of William von Humboldt more biographical completeness; but we hope they will nevertheless be considered as characteristic of his life and tendencies, and enable the reader to form an estimate of one of Germany's greatest men in modern days.

CHAPTER III.

THE first period of his happy matrimonial existence, Humboldt spent on the beautiful estate of Burgörner, which, with the adjoining spot, Siersleben, had been the property of Caroline von Humboldt's mother. It is situated in the duchy of Mansfeldt, halfway between Ascherelsben and Eisleben.

Humboldt's first care was to renew his interrupted intercourse with his old friends, and he stated to most of them the reasons which had induced him to retire from all public life. We give an extract from one of his letters, as it will give the best description of his life at this period. It is to G. Forster, and is dated the 16th August. After apologizing for his long silence, he says :

"I have now absolved myself from all business, left Berlin, married, and live, in the country, an independent, freely chosen, infinitely happy life. I feel this doubly in telling it you, for I know your warm affectionate heart, and your tender sympathy. I do not fear from you such disapprobation of my step as I met with from many others. You esteem liberty and independent activity too highly to expect much utility from a man only dependent on his official position, and I hope you know that I should never choose any other than one in which I can expect to cultivate my own attainments and character. Indeed, dear friend, the impossibility of doing this was the principal persuasive which told me to choose another course. The axiom that nothing on earth is so important as the highest power, and most varied cultivation of the individual, and that, therefore, the

primary law of true morality is, *educate yourself*, and only the second, *influence others by what you are*; these axioms are so firmly impressed upon my mind that nothing can change them. And how, cherishing such opinions, could I tolerate a position in which I could scarcely hope slowly to approach the ideal which filled my mind and heart? how could even the good I certainly effected, compensate for that which I shall in future be able to effect to a much higher degree? I, therefore, preferred the most modest destiny, a quiet domestic life, and a smaller sphere of action. In it I can live for myself, create a cheerful contented life for those nearest to me, and, perhaps, if my good genius grants me some fortunate hours, add something to the enriching or cultivation of the sphere of ideas to which all action in the world, voluntarily or involuntarily, only tends. Thus much of myself and my situation."

He concludes by recurring to the happy days formerly spent in Forster's society, and thanks him for the improvement his society had always been to him.

Although Humboldt's resolution to abandon a lucrative official position, and live with more exclusiveness for his own intellectual and spiritual culture, be highly praiseworthy, and has led to the happiest results for science and literature by perfecting his great talents, still it required such an entirely independent worldly position as the one in which he was fortunately placed to be enabled to follow the bent of his tendencies in life. The considerable family estates left by his father were only divided between the two brothers. The estate of Ringewalde fell to Alexander's share, who sold it, and undertook his great journey to America with the proceeds. William kept Tegel and the estate of Hadersleben near Magdeburg. By his marriage, his possessions were considerably increased. Madame von Humboldt was heiress of Burgörner and Auleben; the revenue alone amounted to 10,000 thalers (1500*l.*), which was at that time considered a much greater income than it would be at present.

Humboldt's principal study during the first years of his retirement was archaeology, and the political speculations in which he sometimes indulged were merely accessory. But few of the results of his studies of this period appeared in print; partly because he did not think of it, and only communicated the most considerable of his works to such of his friends with whom he could enter into improving discussions upon them. Among these the most useful to him in these studies was F. A. Wolf, the great archaeologist of Halle, and the friendship cemented by these mutual studies proved an enduring one through life.

But Humboldt met with the most beneficial sympathy in his archaeological studies from his highly educated wife, who was capable of following him even here. She joined his studies, read with him in Homer, Pindar, Herodotus, &c., and, when Wolf visited them in their retirement, she joined in their conversations "illustrating the scientific earnestness of the men with the grace of a feminine understanding of ancient art and poetry." The happy couple spent no day without studying Greek; and therefore Humboldt subsequently dedicated to her his published translation of Agamemnon, that ripe fruit of his Hellenistic studies, in memory of those years spent in common in intellectual enjoyment.

In the February of 1792, Humboldt removed to Erfurt to await the confinement of his wife, near his father-in-law, and within reach of better medical assistance. Caroline von Beulwitz spent some time in their house, and took part in the intellectual occupations, which suffered no interruption from the change of residence, as Humboldt, on the contrary, here commenced the translation of some of Pindar's odes, some of which were subsequently published.

In the middle of May, 1792, Humboldt was gratified by the birth of his first child, a girl, which was called Caroline, after her mother. On this occasion he wrote to Forster (June 1):—"My little girl is a lovely little creature, larger and stronger than so young a child generally is, full of life and merriment, and has very

large blue eyes, which constantly turn from side to side. My wife nurses the child herself; I, in my total freedom from business, am constantly with her, and so the child is scarcely ever in other hands than ours. Only you, my dear friend, whose heart is so open to these joys, and who know me more intimately, can feel with me how delightful these occupations are, and what a rich profusion of new joys is granted me in my already enviable position." The rest of the letter treats of a political work, which he had undertaken at the request of Dalberg, and which he sent to Forster for his opinion and judgment, before giving it to the public through the medium of the press. This is the last letter from Humboldt to Forster which has reached us, and we may presume that few more were written. The French entered Mayence on the 21st October, and Forster, in his enthusiasm for the French revolution and for freedom, was sent to Paris by his fellow-citizens, who wished to be incorporated with France. While there, Mayence was again taken by the allied army, and Forster was obliged to remain in Paris, a witness of the Reign of Terror, and died there, of want and grief, in 1794. His widow married the author Huber.

Humboldt and his family left Erfurt in the summer of 1792, and went to reside on their beautiful estate of Auleben, on the banks of the golden Aue, where they remained till the spring of 1793, continuing their studies in retirement and happiness.

The political work, after Schiller had, with some difficulty, found a publisher willing to take it, was however not published, as Humboldt wished to modify and remodel it entirely; it was, indeed, never published as an entire work, probably because Humboldt never felt the inclination to re-write it.

Before the end of the winter, 1793, Humboldt again visited Erfurt. The following spring brought him another child—a son, to whom he gave his own name, and who, during his short life, was the father's favourite.

In the summer, he went to Berlin for the first time with his wife ; but the political and social circumstances there were still not of a nature to induce him to remain, and he left it after a short visit. After several years spent in retirement, he now felt the want of communicating and exchanging his ideas, and, to satisfy this desire, he and his family removed to Jena in the spring of 1794, in order to live in the immediate vicinity of the great poet Schiller.

We will now enumerate the works of William von Humboldt, published from 1791 to 1794, beginning with those on political philosophy. The first of these is "Ideas on Constitutions, suggested by the new French constitution." This was contained in a letter to a friend, in August, 1791, and was published in the "Berlin Monthly Journal," edited by Biester. The second, "Ideas for an attempt to determine the boundaries of the State," in which this question is investigated from all points, especially in reference to home policy. It was only published in fragments, and the most important of these is superscribed, "How far may the care of the State for the welfare of its subjects be carried?" But, even this chapter is not perfect, as only the most important portions were printed. Besides this, three smaller chapters were published: the fifth, "On the care of the State for protection against foreign enemies;" the sixth: "On Public, National Education;" and the eighth: "On the improvement of Morality by National Institutions." The first-mentioned work was published anonymously; the fragments bore the name of the author.

In these essays it appears plainly how profoundly Humboldt understood the disadvantages of modern civilization, and in what way he suggested their removal. The study which he considered as best adapted to form a highly cultivated nation, was that of antiquity, and especially of the Greeks. Humboldt took a lively interest in old, even uncivilized nations, especially of the southern ones, because they have a bolder natural life than the more modern northern

nations. He therefore tarried with particular interest among Italians and Spaniards, and he spent some years in investigations of the traditions of the Basque nations. When he had planned his first visit to Italy, he anticipated greatly extending his knowledge of the human races there. He wrote to Schiller on this subject, 12th of October, 1795: "As far I know the nation now, it must reveal much original natural humanity, besides all its civilization, although, perhaps, not in a very high degree, as the sensual faculties seem to be principally developed. It must be more formless than any other nation, and therefore particularly adapted to reveal certain interesting features of human nature; and in this I imagine it resembles the ancients, and is, so to speak, their shadow." Rome itself seemed to him the embodied conception of that past which so mightily occupied him; and he considered that city best adapted for the study of the history of the civilization of the human race. He expresses himself more forcibly on this point in his review of Goethe's Italian journey, which he wrote in 1839. The modern civilization, he says, had to raise itself on the spirit of antiquity, in order to combine itself into a complete whole, and especially on the spirit of the Greeks. It can on the whole be said of Humboldt, who lived more in the sphere of ideas, that he never entered exclusively into the consideration of the present and nearest, but always kept in view, at the same time, how these circumstances would be if our existence were inspired by the strength of the ancients—if the current which carries events forward had arrived already at that issue to which we look back with eternal longing.

When he had retired from the official position he had entered upon, he at once devoted himself zealously to the studies which he had chosen for the attainment of his object. Thus years passed on, which he devoted almost exclusively to the Greek world. But before these years were passed, he had attained to a far more profound comprehension of antiquity than

even the greatest philologists of the day could boast of, and we can therefore not be surprised when we find that the comprehension of antiquity as a whole, which had been only the accidental result of his studies, now partly became the very purpose of these studies. His reasons for this, and his views, are best shown in a letter which he wrote to his friend Wolf, in 1792. "It is probable," he says, "that I shall have the wisdom not to change my present condition, and in that case, antiquity, especially Greek antiquity, will form my exclusive occupation." [I cannot study as a philologist *du métier*, my education prevents that; for if I were now to endeavour with all my power, and with all the resources at my command, to acquire accurate knowledge, even of grammatical details, I should never—beginning so late—advance far enough.] It seems to me, however, that my individuality has led me to a less common view of the study of the ancients. I find it difficult to explain my meaning briefly, but the sum of it is about this. There is, besides all studies and developments of mankind, a peculiar one, which, so to say, braces together the whole man, and makes him not only more capable, better, and stronger in one or the other point, but makes of him a greater and nobler man; and this requires, at the same time, strength of the intellectual, goodness of the moral, and sensibility and susceptibility of the æsthetic faculties. This kind of education has gradually fallen into disuse, while it prevailed to a high degree among the Greeks. Now I think it cannot be revived better than by the study of great, and in this respect, admirable men, in a word, by the study of the Greeks. No other nation possesses such simplicity and nature, with such a high degree of civilization; and none combined so much persevering energy, with susceptibility for every impression. The study of the Greeks, in this respect, and the description of their political, religious and domestic situations, in its strictest fidelity, will occupy me until my attention be forcibly directed to something else, or until I shall have perfectly fathomed

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my subject, for which, according to my requirements, a life would scarcely suffice." Although Humboldt speaks so modestly, in the commencement of this letter, of his philological knowledge, we may justly assume that he had advanced very far in this branch before this time; for it cannot be supposed that he who had attained to such eminence in the field of languages, should not have very early mastered the Greek tongue. Indeed, we shall soon see that the philosophy of language began to occupy his attention already at this period. We can, indeed, see in the words quoted above, nothing but the honourable modesty which would not permit him to address Wolf, on his exclusive field, as an equal. In a letter to Schiller, written about the same period, he does not conceal that he feels himself sufficiently master of the Greek language to translate the most difficult Greek poet, who has hitherto been mastered by no one, in the rhythm of the original. It is, however, natural, that Humboldt should never have considered actual philological knowledge as his chief purpose, although he considered that nothing in science could be trifling or unimportant. This he says, in a critical essay on Wolf's translation of the "Odyssey," in the following words:—

"It is difficult to say what a trifle means. For him who is accustomed to study any branch of science in a philosophic spirit, no portion of it has a particular importance, but each has its value by its relation to the whole. By an exact view of the whole, not by casual suppression of the apparently unimportant, does a clever, spirited treatment of any subject differ from a pedantic one. In science, also, everything is interconnected, and if the critic has to study the language to its full extent, it is difficult to understand why he should neglect accentuation and orthography, or only study it to a certain arbitrary extent." Thus Humboldt entered into all studies, and pursued each one which he found requisite for his purpose, as if it were, for the time, the chief purpose and task of his life.

In the beginning of 1793 he sent Wolf from Aulenberg an essay on the study of the ancients, and especially of the Greeks, in which he recommends their study to every individual by all possible arguments. This essay was dedicated to Wolf, although it was also submitted for perusal and criticism to Schiller and Dalberg; but we nowhere find it printed, and a few fragments only have been collected, which have enabled us to gather the spirit of the work. He gives a sketch of the gradual stages of Greek culture, its peculiar characteristics, and his reasons for recommending it as the best civilizer of the present age, and, in conclusion, advises the learner not to devote himself exclusively to the period of the highest Greek civilization, but on the contrary to dwell more on the earlier periods, for in them, he says, are contained the germs of the really fine character of the Greeks, and it is more instructive to watch how it was gradually modified, and finally corrupted.

It was at this period Humboldt's intention to produce ☒ a description of the Greek character illustrated with detailed historical proofs," but he soon gave up the plan on account of the great extent of the work; the materials he had collected for the purpose, loom, however, through all his other works, and make us regret the non-fulfilment of the great plan. 0

Among the Greek poets, Pindar and Eschylus occupied his attention principally, and he has translated several of the works of the former. There is no surer way of penetrating the spirit or the language of a nation than by a constantly continued attempt to reproduce its authors, and especially its poets, with the utmost possible fidelity in the mother tongue. Humboldt devoted much time to this occupation, and succeeded in his efforts better than any known Greek translator. His translations from the Greek are the only ones in German which combine fidelity in form and matter with clearness and ease of expression. It had once been his wish to translate the whole of Pindar, but in 1795 he gave up all hopes of the realization

of this plan. He continued to his latest years, however, in producing fragments of the finest and most characteristic works. Fifteen are included in the second volume of his collected works, and several of these must have been written, or at least commenced, between 1792 and 1795. Humboldt is acknowledged to be one of the best translators, and his works on this field of literature, especially his "Agamemnon," rank with those of the first. If they occasionally seem heavy, or un-German, the fault lies more in the rigidity of his principles in respect to metre and rhythm, and in the extreme difficulty of the works he had selected.

He was, however, not exclusively employed in studying the character of Greek art, but also that of modern, especially of German poetry. The more the ancient poets cultivated his æsthetical perceptions, the less did he overlook the great works of his fellow-countrymen. And now, at the time when he had been so strengthened by his studies, fate introduced him to those poets who, on the point of approaching the ideal of art in emulation of the ancients, and of perfecting their natural capabilities by theoretical criticism, could scarcely work without a fellow-labourer who had thoroughly mastered the knowledge of the ancients, and whose judgment was not warped by modern prejudices. How often Humboldt regretted a modern or superficial comprehension of the Greeks in other cotemporaries—in Herder, Woltmann, even in Schlegel! Schiller and Goethe needed a mind who possessed as much knowledge of that former world as sympathy for modern art, as much independent knowledge as interest in the labours of others. As Lessing was dead, none could have sufficed but Humboldt. He alone could fully enter into the plans of these great men, and assist them by criticism and speculation. By the friendship of these three, the modern philosophy of art was founded, partly by a more profound study of the nature of the human imagination, but principally by comparative criticism of ancient and modern poetry.

It was principally in order to live in the same town with Schiller, that Humboldt, with his family, removed to Jena, in the spring of 1794. Schiller did not arrive in Jena till some weeks later, having paid a visit of some months to his native province. But it was not only Schiller's society which he found in Jena, for it was also at that time the permanent and occasional residence of several other eminent men. Those belonging to the philosophical school were, of course, most congenial to Humboldt, and they belonged all to the Kantian school, or followed in its steps. Most eminent among them stands Fichte; besides him, Niethammer taught there, also councillor Schütz, the philologist, and the doctor of law, Hufeland,—all Kantists. But there were other illustrious men also here. The historian Woltmann, who endeavoured to shine in the most varied branches; the philologist and archæologist, Ilgen,—the theologians, Paulus and Griesbach,—not forgetting the naturalists and medical men with whom Humboldt came in contact, partly by his own studies, partly through the medium of his brother and Goethe; among them Batsch, Loder, and others. Stark and Hufeland, the eminent physicians, had, as such, access to Humboldt's house; so that from the driest branches of sciences, to the most cheerful enjoyments of art, all degrees were represented in Jena, and were received by Humboldt in his hospitable house. The universal and versatile mind of a Humboldt could take part in all; he sought to instruct himself in all branches; and while he, a man of six-and-twenty, associated with the pillars of science, and was on terms of equality with the oldest and most advanced, he was youthful enough to enter into cheerful and confidential conversation with the humblest of the youths who thronged in masses from all parts of Germany to the celebrated seat of the Muses, if he found in them mind or talent.

The admiration for Eschylus made Humboldt intimate with Schütz, who was editing the works of that Greek author, which Humboldt attempted to trans-

late. He also contributed to the "Allgemeine Literatur Zeitung" of Jena, which was at that time the first critical paper in Germany. The young Woltmann, too, was talented enough to interest Humboldt, but he treated him always with a certain irony, and did not regard him as perfect in any of the numerous branches in which he pretended to excel. It was soon discovered that he was, in history, an imitator of Schiller, though by no means an unskilful one. As an æsthetician, Humboldt considers him weak; as a critic, insufficient, affected, and poor in ideas; as a poet, intolerable; and in his chair as lecturer on the sources of history, he spoke of the ancients with modern self-sufficiency.

Humboldt's acquaintance with Fichte and Nie-thammer was more satisfactory, and they invited Humboldt to contribute to their philosophical journal, though it does not appear that he did so. Both Schiller and Humboldt seem to have cultivated Fichte's acquaintance, although Humboldt seems to have had more respect for the great thinker, and to have been on better terms with him than Schiller. It would seem, from all contemporary testimony, that Fichte, this noble and great man, was extremely quarrelsome and obstinate, and self-willed to eccentricity.

A more intimate friendship seems to have subsisted between Humboldt and Ilgen, the subsequently celebrated rector of Schulpforte. With him he conversed on languages and antiquity, and on the philosophy of language. Ilgen was also an agreeable companion, and liked to see his friends in his house; from his wife we know something of the exterior appearance of the great minds of that day. The outward elegance of these great men was, with the exception of Woltmann and Goethe, very questionable. Humboldt was, however, very careful of his dress, and whenever the men, after dinner, left the room to take coffee and to smoke, he retired to change his coat, because he wished to save his dress-coat from Ilgen's

smoke, for Humboldt hated smoking. The dress-coat itself was very simple, but he returned to the clouds of smoke in a coat which "a respectable barber of the present day would despise." This is characteristic of a period in which so much intellectual food was afforded and enjoyed, that other matters were of no moment, and the mental worth weighed more than the exterior appearance.

Schiller returned to Jena in May, 1794, and henceforward the most intimate friendship connected the two families through life, especially as the two ladies found in each other old and dear friends. Humboldt had taken a house on the market-place, immediately opposite Schiller's house. "We met twice daily," he says, "were principally alone in the evening, and generally together till late at night." They spent these hours in philosophical and æsthetical conversations, of whose extent and importance we can now form some idea from the correspondence of the two men. By these conversations Schiller formed himself for his intimacy with Goethe, which was soon afterwards to commence.

What a loss for society that an Eckermann was not present, who could have reported these conversations to us! How the little we know of it makes us long for a more detailed account! A friend of Humboldt's, William von Burgsdorf, wrote to Rabel from Jena at this time: "Humboldt goes to Schiller's regularly every evening from eight until after ten o'clock. The second evening of my stay here I went with him, and always since then. I am delighted to see Schiller thus. He lives only in his ideas, in constant mental activity; thinking and poetising is his only want, and he esteems everything else only in so far as it conduces to this, his real life. Humboldt, therefore, is very much to him: he considers these hours as his hours of recreation, but only in his own way. I speak little, but not too little, and if the conversation becomes too abstract for me I play with the bricks; in short, everything here has fortunately an entirely

domestic aspect. Humboldt is entirely at home, and more amiable than ever. With Schiller he is quite unconstrained, and sometimes as witty and comical as we have ever seen him. You may think, also, how interesting it is, when, instead of cutting short and trivializing everything, he has always the desire to express himself; when he, instead of combating his opponent in something not to the point, always keeps to the subject, when he esteems truth itself as much in words as in thought; I mean, when he does not too soon break off his opinions, or maintain them too long, from contempt for the opinions of the other."

Very soon afterwards Goethe joined the friendly union subsisting between Humboldt and Schiller. The inducement and occasion was the origination of a journal, "Die Horen," an undertaking which Schiller had projected with the young publisher, Cotta, in Tübingen, and which was carried into execution in Jena.

"Die Horen" were to enlist the co-operation of the principal writers and thinkers of Germany, and by an uninterrupted series of valuable contributions from them in prose and verse, were to form a never-before seen testimony of the literary advancement of the age, and the means for its further development. Schiller was well qualified for directing such an undertaking, but the time was not appropriate, the public too apathetic, and the real members, and their regular contributions, too few, to support the journal for more than a few years. Besides, only the numbers issued in the first, and part of the second year, fulfil the high promise of its commencement.

Humboldt's interest in this journal was a very considerable one, and Schiller valued him as one of his most able coadjutors. In his application to Goethe to join their undertaking, dated 13th June, 1794, he speaks in the name of those already associated, and says that in Jena, Humboldt, Fichte, and Woltmann had undertaken to superintend the publication of the

journal, and that it was their wish that Goethe should join this select association, of which one or two were always to read over and judge the contributions sent in. Goethe willingly accepted the invitation; and the first few numbers of the paper contained, besides two long essays by Humboldt, contributions from the editor—Schiller, Goethe, Herder, Fichte, A. W. Schlegel, Engel, and Professor Meyer.

Goethe came to Jena soon after this, in consequence of his association with the journal, and then the basis of that friendship between the two poets was laid, in which Humboldt participated to so eminent a degree, and which is an honour to German literature.

After Goethe's departure from Jena, from whence his correspondence with Schiller dates, we find in every letter "Remember me kindly to Humboldt and the ladies;" and when, a few months later, he invited Schiller to visit him in Weimar, he requested Humboldt to accompany his friend, which he did, although only for a few hours. No other stood in such near relation to the two German poets; and a correspondence between Humboldt and Goethe was soon afterwards commenced, which was carried on for nearly forty years; as it has, however, not yet been published, we possess only the indications of it which, from time to time, appear in Humboldt's letters to Schiller.

Goethe now visited his Jena friends from time to time, and Humboldt returned his visits to Weimar. In November, Humboldt accompanied his brother Alexander, who had been in Jena and was going to Frankfort, as far as Weimar; and Goethe writes to Schiller—"Humboldt arrived to join an æsthetic-critical session; I do not know how it entertained him:" and Schiller replies—"Humboldt, who would be warmly commended to you, is still full of the impression which your method of reading Homer has made upon him; and he has excited in us all such a desire for it, that when you come again for a few days, we shall not rest until you hold such a session

with us." In January, Goethe visits Jena again, and writes in March—"I hope Herr von Humboldt has been industrious, and also anticipate conversing with him again soon on *anatomica*. I have put aside some very natural but very interesting chemical preparations for him. Remember me most kindly to him and the ladies." Goethe spent nearly the whole of April in Jena; and in May he was agreeably surprised, in Weimar, by a visit from Humboldt. In June he visits Jena again, and Humboldt accompanies him to Weimar.

Goethe sent his contributions to the "Horen" in MS. to Schiller and Humboldt, and requested them to read them over once more, and correct them; he had made them as complete as his time permitted. He also sent the MS. of "Wilhelm Meister," on which he was at this time employed, to Schiller, with the request to mark what he did not approve of; and adds—"I recommend my hero and his companions also to the consideration of Herr von Humboldt and the ladies." The friends were delighted; Schiller made a few marginal notes, and the more important objection—when Wilhelm receives the present of money from the countess, through the baron—that he, as well as Humboldt, considered, with such a tender relation as the one existing between the parties, such a present, and through a third person, could neither be offered nor accepted; and suggested a modification. Goethe replied, that he hoped to be able to change this objectionable incident, and to follow the other suggestions of the friends. Humboldt read the conclusion when he returned to Berlin, and writes—"The fifth book is highly interesting, and entirely in the spirit of its predecessors. But the difficulty with the person in whose arms Wilhelm felt himself is more seen through than, I think, was permissible. Meister's falling asleep is also not natural."

The most interesting discussion on this subject took place when the conclusion of the "apprenticeship" appeared, as both Schiller and Körner took part in

it. The latter commenced it by a letter to Schiller, exclusively devoted to this subject, in which he pronounced himself unconditionally in favour of the principal character in the book. Humboldt opposed him on this point, without, therefore, thinking less favourably of the work itself. Körner's letter had been shown to him and he sent his opinion direct to Goethe, who forwarded it to Schiller, with the remark: "It is consolatory to have such sympathizing friends and neighbours. From my own immediate circle nothing like this has come." We see by this correspondence what a great influence our Humboldt has exercised on the works of the two greatest of modern poets, and that without having produced such works himself he has been very instrumental in their production.

Of Humboldt's works written during this period, we may name his review of Jacobi's "Waldemar," which appeared in the "Allgemeine Literatur Zeitung" (1794, Nos. 315 and 317), and is now included in his collected works. This very profound essay treats of the most interesting problems of psychology and ethics, and has great value independent of the too-favourably criticised work. The philosophical portion of the review is much more important than the esthetic part; but this is natural, as the value of the work lies far more in its matter than in its form, and it was the friendly purpose of the critic to dwell principally on the former. Rabel Levin writes of the review, in a letter to a friend, that it had been decried as too difficult, but that she had found it very intelligible, and admired it exceedingly. "It is much more talented than 'Waldemar' itself, as it contains everything the book should have contained, while Jacobi does not give what he should give; he describes only the form of a system, not characters who embodied it—not a living natural specimen." The work, she says, seems to her as the sketch for a criticism, and she is disgusted by the naturalness and stiffness of Jacobi's characters. Humboldt, she continues, should have reviewed *He-loise*, *Werther*, or *Tasso*, and then one would have

had the pleasure of admiring two geniuses at the same time, and see one genius admire the other. Humboldt's own ideas she thinks excellent, and cannot understand some persons' opinions of him. "You always considered Humboldt an extraordinary philosopher, and praised and exalted him, but denied his knowledge of character. Has he then never spoken with you as he has written in this review? Or have you entirely misunderstood him? Else you must have bowed deeply before his knowledge of character."

Other less favourable reviews of "Waldemar" appeared in other journals, soon after the publication of Humboldt's criticism; so that it would seem that he was led by his friendship for Jacobi to judge his work too favourably.

Besides this review, two essays, which he wrote for the *Horen*, are remarkable. I. "On the difference of Sex, and its influence on Organic Nature," and II. "On Masculine and Feminine Form." They were written during the time of his most intimate communion with Schiller, but are entirely his own, and a kind of centre of his ideal world. For, although he may have discussed these subjects with Schiller, and modified or enlarged his ideas by communication, it could easily be proved from their correspondence that Humboldt persuaded and encouraged Schiller to turn his genius to the consideration of these subjects. Schiller also never entered so earnestly or deeply into the subject as Humboldt did; he treats the subject only in some lyric, lyric-didactic and epigrammatic poems, i.e. "Würde der Frauen," "Die Geschlechter," "Tugend des Weibes," "Die Schonste Erscheinung," "Forum des Weibes," "Weibliches Urtheil," "Das Weibliche Ideal," which all appeared in 1795 and 1796, during the period of, or immediately following, his intercourse with Humboldt, who descends into the depths of his subject, and draws the pure ore from the rich mine of his thought. Any attempt at a description of the chain of ideas developed by Humboldt in these essays would lead us beyond our limits, and

would still give but a very poor idea of the profundity of knowledge displayed in them. They are among the most interesting works which Humboldt has written, for he appears here as an entirely original thinker. Both his subject and its treatment are peculiar and novel, and have formed the basis of subsequent investigations by other philosophers.

The second treatise was quoted soon after its publication by Franz Schlegel with great commendation. Jacobi wrote to the author to express his commendation of the first. The introduction only he considered, and perhaps not without reason, as too abstract, and thought that the quantity of great and glorious ideas in which the essay abounds, might have been so put that the subject should flow more from them than they from the subject. Humboldt himself had little hope of disseminating his ideas, and felt this more powerfully when he read Schiller's poem "Würde der Frauen." He writes to him 11th September, 1795: "It was indeed an indescribable feeling to find things on which I have thought so much, which are perhaps more than you may have remarked, interwoven with my whole existence, expressed in such an appropriate diction. What we think and write down in prose is, after all, only words, something dead and powerless, and especially something indistinct and imperfect. It only receives completion, life, and a peculiar organization from the pen of the poet, and I have never felt this so vividly as now." Schiller replies to this, 5th Oct. ; "Do not doubt, my dear friend, that your ideas on sex will eventually become current, and will be stamped as scientific coin, as soon as you will publish a still more detailed work on the subject. This is certainly necessary, and I think the matter deserves it. I am now only waiting for some public voice of approbation of my poem, and for a suitable opportunity to state publicly how much is contained in your essays." A very important opinion on these essays, and especially on the one treating of masculine and feminine form, has lately been published by Francis von Müller; "When

Humboldt wrote these essays he had not seen Italy, and consequently knew the classic statues only through copies, some of the most charming of them not at all. It is therefore the more remarkable, and to be admired, with what an unerring and penetrating judgment he seizes the forms of the classic gods and heroes, and brings them before our mental eye, and the happy aptness of his nature to comprehend the original types of the beautiful with clearness and purity, to conceive and examine them in their most profound peculiarity is undeniable and admirable." Simultaneously with these essays Schiller's letters on the *Esthetical Education of Man* appeared in the "*Horen*." The intimate relation of the chain of ideas in the two authors is nowhere more decidedly apparent. They seem almost to struggle for the palm in brilliancy of diction, in the poetically attractive garment they both throw round the most abstractly philosophic ideas. Humboldt's power of language can scarcely be more gracefully displayed, a difficult subject could not have been more perfectly mastered, nor abstract dryness been more happily avoided than in this essay. We would even, if it were not presumptuous, award to it the palm, in consideration of its clearness and intelligibility, in preference to the letters, in which the ideas are rather too finely and dialectically drawn out.

Humboldt also published an announcement of the small edition of the *Odyssey*, by F. A. Wolf, for the *Allgemeine Literatur Zeitung*. It was a public acknowledgment of the merits of Wolf, as regards his restoration of the Homeric text. We have already quoted the passage in which he speaks of the importance of the most trifling points in science, and which occurs in this essay.

Alexander von Humboldt visited his brother several times during William's residence in Jena, and during his stay, galvanic and anatomic studies, in which William participated, and Goethe was equally interested, were the order of the day. In 1795, Alex-

ander made a journey across the Alps to Italy, from which he did not return until the following year.

Humboldt's intimacy with Schiller naturally brought him into closer connexion with those who enjoyed Schiller's friendship, or visited him in Jena. The principal of these was Körner of Dresden, with whom he entered into a warm correspondence. In 1794, a young fellow countryman of Schiller's, Frederick Hölderlin, also came to Jena, and was very kindly received and supported by Humboldt. He was a highly poetical spirit, but died too soon, after a most unfortunate career.

Humboldt, with his family, left Jena, in June, 1795, with the intention of returning in October, after a short visit to Tegel, but they found his mother so ill that they remained near her the whole winter, and did not return to Jena till the autumn of the following year. This long separation was equally painful to Humboldt and to his poet-friends. Schiller writes to Goethe, 2nd October, 1795, "Humboldt is not returning this year, which is very unpleasant for me," and to Humboldt he writes: "Goethe laments your long absence very much. Even on account of anatomy he wished for your presence." But Humboldt felt the long separation from Schiller most acutely, especially whenever he was uneasy about Schiller's health, as he then thought how welcome his presence and conversation would be to the invalid. He even suggested to Schiller to remove to Weimar, as he would then, at least, have Goethe near him. In every letter, Humboldt expresses his longing for Schiller's society, and writes to him 4th August, 1795, "I have become so accustomed to social thinking, that if my absence lasts long, I shall fear for my stock of ideas. I take refuge, however, in memory, and, mentally, I spend the best part of my time with you."

In Tegel, he led a very retired life, which was frequently disturbed by sickness in his family. His own health had not been so robust in Jena as formerly,

and he suffered from an eye disease, which sometimes even made reading a difficulty. He rarely received visits, and sometimes did not go to Berlin for six weeks. Many obstacles prevented his producing anything for publication at this period, and principally his ceaseless study. But the most important part of his correspondence with Schiller, took place at this time, and, as it has been published, the world has been a great gainer by the temporary separation of the two eminent friends. In their correspondence, we see the greatest works of Schiller planned, discussed, corrected, and gradually brought to completion, the ideas and sentiments contained in them are debated and suggested, and, now and then, Goethe also sends manuscripts and plans of works to Humboldt, that he may peruse and correct them. This correspondence enables the reader better to comprehend all the works of the German poet, as their beauties and defects are discussed and pointed out with penetrating criticism, in the unguarded outpourings of an affectionate correspondence.

For himself, Humboldt made more plans and projects at this period than he realized; he seemed to live only for Schiller, as the adviser and corrector of his genius. But even his plans are interesting, and we will therefore briefly sketch them. He purposed to make Voss's "Louisa" the subject of a critical essay, and intended to confine himself strictly to the idyllic portion of the work, to glance at the idyllic poets of other nations, and take the opportunity of elucidating his favourite theory of the similarity of the Greeks and Germans. Another project was the criticism of Goethe's "Reinecke, the Fox," of which only some very original ideas on the Fox have reached us in letters to Schiller. Schiller requested him to write an explanation of his "Reich der Schatten," but although Humboldt would have liked the task, he thought it unsuitable in him to constitute himself a commentator on Schiller.

The plans and works relating to antiquity were

more perseveringly pursued, although his translation of "Aristophanes" remained very fragmentary. But he laboured seriously at the plan of giving a comprehensive picture of the Greek poetical spirit, with a few characteristic features and some prominent examples in a special essay. He had read nearly all the great poets more than once, and with great care. But not wishing to aim at too much, he was to commence only with the poetic spirit of the Greeks, with their descriptive power, and in future essays treat them in a more universal spirit. But of this little could have been achieved, and nothing was published. The only works which were printed were the translation of Pindar's Fourth Pythian Ode, with introduction and notes, and a review of Schiller's "Almanac of the Muses, for 1796." What a glorious time for literature that was when Schiller edited an almanac, Goethe was the greatest contributor, and William von Humboldt the critic!

CHAPTER IV.

As Humboldt intended soon to leave Germany for a journey to Italy, he made a short trip into the north of Germany in the course of this summer (1796), and visited Voss in Entin, and Klopstock in Hamburg, who were both much pleased and flattered by his visit. On his return from this trip he went once more to Jena, in November, 1796, and remained there till the following April. The time was spent as before, in almost constant intercourse with Schiller, in literary activity on both sides, with frequent visits from Goethe, who came to read his unfinished production to his critical friends, and receive their judgment and praise.

In November, Humboldt received the account of his mother's death, which afflicted him much, though it was not unexpected ; and at the beginning of the year, Alexander came to visit him and spend some time with his family, which had been increased by a little boy, who received the name of Theodor. Alexander was full of plans for his great West Indian journey, and with this object in view he cultivated his knowledge of practical anatomy, spending from six to seven hours daily in the anatomical lecture room.

William, during this winter, commenced his translation of the "Agamemnon" of Eschylus, and after he had submitted it to his friends and received their judgments, he writes to F. A. Wolf, with unaffected modesty :—"Having shown my translation to some here, I find myself in a very peculiar position. Schiller is not quite pleased with it. He does not deny that

the translation has energy and poetical feeling, but he considers it too harsh, heavy, and indistinct. It wants a more common structure, more clearness, and perhaps a less faithful metre.

"You seem to condemn my work equally, but just from contrary reasons, though it might be possible that your complaint of want of the true spirit of Eschylus is identical with Schiller's objection of want of clearness.

"Franz Schlegel made the same objections that you make when I read the manuscript to him in an earlier copy than the one you have. I altered many things, and at the second reading he seemed more content. Whether he was quite satisfied, I do not know. He is, as you know, rather laconic in these matters.

"Goethe is very well satisfied with the work, as I gather from remarks made to myself and others, and from his constant interest in the progress of the work. He wants me not only to finish the "Agamemnon," but to follow it up with appropriately chosen pieces by Sophocles, Euripides, and Aristophanes. They all seem not particularly to esteem the versification, which is the most difficult and, in my opinion, the most meritorious portion of the work. With Schiller, it is from want of the requisite knowledge of Greek. You have given no opinion on this point. Goethe seems to feel and to approve of it, but he wants the knowledge for criticising it. Franz Schlegel is the only one who has entered into the subject, and he is, with a few exceptions, satisfied.

"Thus far my report. The position I take up in face of these criticisms is this. In the first place I always consider blame more justified than praise. Goethe's praise is, for many reasons, not satisfactory. He finds my translation of great use in reading the original, and is grateful. Of the adverse judgments, Schiller's seems to me the least important; it only proves that I cannot count on a very extensive circle of readers, and I knew that before. Only your con-

demnation has grieved me, and I confess frankly to you that I have not written a verse for four days, nor looked at my work. My courage has now, however, been revived, and I find myself in the true position which I may follow. It is my firm intention to collect as severe criticisms as possible, before my work is completed, without, however, giving up my independent judgment. I have no want of industry and perseverance, but when I perceive the impossibility of doing more, I shall declare it to be finished. For what else can I do? This work occupies me much, and I have never felt such interest in any."

He wrought a long time at the alterations of the work before he declared it to be finished.

At this period Humboldt left Jena and his poet-friends. Schiller parted with him more easily now than he would at any other time have done, as his intimacy with Goethe was now at its height, and he therefore missed his friend less. But for Humboldt the separation must have been more painful, for he had in the previous August, when speaking of his journey, declared that he could nowhere, wherever he might live, find a compensation for this friendship; he subsequently writes, that he knows not how much he would give if his friend could accompany him; and after Schiller's untimely death, he wrote to Wolf that he had spent his most intellectually fruitful years in intercourse with Schiller.

From Jena, which Humboldt, with his family, left the end of April, 1797, they proceeded to Halle, where William remained some days, that he might settle many disputed questions concerning his "Agamemnon," in personal conversation with Wolf, and then hastened to Berlin, where, after the death of his mother, he had to arrange his affairs, with a view to a lengthened absence. Alexander met him there, and in order to be able to defray the expenses of the great journey he had planned, sold the estate of Ringewalde,

which was his share of the parental inheritance, to the poet Franz von Kleist. Both brothers had the intention of proceeding to Italy over Dresden, Vienna, and the Alps—the younger brother with the view of continuing his journey to Spain, and thence to the new world.

In June, William proceeded, with his whole family, to Dresden, where he remained several weeks, and was joined by his brother Alexander. Here the family affairs were finally arranged, for which purpose Kunth, the former tutor, had also joined the brothers. In Dresden they spent their time agreeably, with the Councillor Körner and the Prussian ambassador, Count von Gessler. They were obliged to remain in Dresden longer than they had anticipated, because Madame von Humboldt was attacked by a fever. From Dresden the entire family proceeded to Vienna, and remained here also longer than they had wished, awaiting the issue of the pending war, which at last forced them to give up for the time their journey to Italy. The Southern Germany had been swept tolerably clean of enemies by the victorious campaign of the Archduke Charles in the preceding year, but the advantages which Bonaparte's genius had achieved in Italy and the Adriatic provinces obliged the Austrians to negotiate. These negotiations lasted a long time, but the fate of Italy was clear, and a journey thither scarcely possible. Goethe, also, could only proceed as far as Switzerland. On the 15th September, Schiller wrote to the latter: "I have to-day received a letter from our friend Humboldt. He no longer likes Vienna, has all but abandoned the plan of the Italian journey, and is nearly determined to proceed to Paris, but the newest events there will have changed this purpose again." Schiller was, however, in error, for these events confirmed the plan of the journey to Paris. Humboldt now determined to approach the French boundary at the foot of the Alps, and there to await the anticipated peace between Austria and France.

On the 30th of October, Schiller writes again to Goethe—"Humboldt has at last written to me from Munich. He is now steering for Basel, where he will decide whether he proceeds to Paris or not. He will therefore scarcely meet you, unless you spend the winter in Zurich, where he will go if he does not go to Paris. He describes a large salt-mine, near Berchthols-gaden, very amusingly. The Bavarian nation seems not to please him, but he praises the Minister of War there, M. Rumford, on account of his very fine and humane establishments."

The peace of Campo Formio was signed on the 17th of October; now France was again open to the German nation, and Humboldt, with his family, at once proceeded thither. After his arrival, and during his stay, his correspondence with Schiller and Goethe continued with the same vivacity as if they were only a few miles distant; and Humboldt seems, during the first period of his Paris life, only to have used the new impressions he received, that he might give a faithful picture of them to the friends he had left. He described the French spirit and French art in his long and interesting letters, with fidelity and vivacity.

Humboldt remained true to his German nature, and to the great interest of German philosophy and art, far more even than his friends expected. While Schiller and Goethe exchanged comments on his descriptive letters, he wrote, in April 1798, his æsthetic essays on Goethe's "*Hermann and Dorothea*"—*i.e.* a theory of poesy, and especially of epic poesy, based on this new masterpiece of the great German poet.

The matter contained in this work had long occupied Humboldt's attention, and his ideas on the subject had been elucidated and perfected by communication with the two poets.

It may appear strange that the enthusiastic admirer of Schiller's poetry should not have chosen one of the works of that poet as the basis on which to develope

his own reflections on art. But the reason seems to be, that the tendency of both poets to approach the ideal of Greek perfection was most plainly shown, and most successfully achieved, in this production of Goethe's. Now, none of the literary men of the day were so partial to this imitation of the Greeks, as Humboldt; and none, therefore, felt such a high degree of critical interest as he did, when he saw this splendid proof of the success of his favourite theory. This selection also plainly proves that he not only deemed epic poetry in general, but this poem of Goethe's in particular, as appropriate for developing the fundamental laws of the beautiful in art. It was, therefore, a fortunate circumstance for him that he was now separated from Schiller, so that the individual characteristics of the latter could not exercise that influence over his judgment which they had hitherto done. He, however, loses no opportunity of doing justice to Schiller in this essay.

Humboldt sent the manuscript of his work to Schiller, with the request to read it over with Goethe, correct it, and prepare it for publication. That Goethe was pleased and flattered by this great testimony to his talents, cannot be doubted; and after reading it, and debating on it, the two poets determined to send it to press as it had left Humboldt's study, without any material corrections.

CHAPTER V.

WHEN Humboldt determined to devote the next years of his retirement from public affairs to travelling and to longer residences abroad, affairs at home had undergone little change, and those of Europe merely a deceptive one. In Prussia, the weak rule of Frederic William II. was still paramount, and all hopes for improvement were centred in his successor, Frederic William III., who ascended the throne shortly after Humboldt had commenced his journey (16th Nov., 1797). Worse the condition of Germany could scarcely be. The governments and the people were apathetic; no trace of national spirit existed; the political feeling of the nation was annihilated by centuries of miserable tyrants, and a few rays of light existed only in the intellectual progress made in a few German principalities. In this intellectual progress of the German nation in arts and science, Humboldt had, as we have seen, taken an active part, but he could do nothing but turn in disgust from the sphere of political life. For what but shame and defeat could be expected from this divided nation, whose powerless fragments had at their head two monarchies filled with intense hatred of each other. What prospect was there but a fearful revolution, whose issue could in no way be calculated? What could be hoped for but a fundamental renovation, inwardly and outwardly, of the national life, and of Prussia, powerless and corrupt in its isolation?

Would not any man who is independent rather quit for a time a country which has such melancholy prospects, and reserve his services until he may hope to

be useful? And how could a man of such high intellectual attainments as Humboldt spend his leisure better than in seeing the men and manners of different countries, and in increasing his knowledge and experience. Indeed, these wanderings abroad were of great service to Humboldt. In studying the nations of southern Europe, and the remnants of classical antiquity, he expanded his views of the past and of humanity in general. Besides, his innate talent for languages developed itself, not so much by intercourse with the various nations, as by the linguistic treasures in which Paris and Rome abound. And, finally, these years formed the practical man—the statesman who was to become eminent by his knowledge, practice, and skill. We may imagine what a residence in Rome and amid Roman scenery must have been to such a sensitive mind as Humboldt's, even without the unequivocal testimony which we have in his letters.

We saw how his plan of proceeding to Italy with his whole family was frustrated by the warlike events. He therefore went to Paris, and we have shown how he cultivated his interest for German art and science even here, surprising his friends in Weimar and Jena with his compendious contribution to art-philosophy. We must now inquire into the circumstances of his Paris life, and see what men there enjoyed his intimacy.

Humboldt arrived in Paris for the second time in his life in the autumn of 1797. To him who had seen the French nation in its enthusiasm for liberty in the first days of the revolution, the place may, spite of the changes it had undergone, not have had the same attraction at this period of temporary exhaustion, although his interest must have remained the same. But as few communications from him during his second visit to Paris are on record, we can only quote some letters from his wife written to various friends. She writes to her friend Rahel Levin, in Berlin, on the 25th May, 1798:—"Paris is the town in which you ought to reside; which you

would enjoy more than any other, especially if you had some Germans near you. Paris is very beautiful; there is scarcely any town which affords a view equal to the one you enjoy when standing on the Pont Royal with the Pont Neuf on the right, the Pont de la Revolution on the left, the beautiful broad river beneath, on each side the broad quays with a row of splendid buildings, the castle of the Tuileries, the garden and the Champs Elysées in the distance." After describing to her friend her mental condition, her longing to know everything *clearly*, even if it should cost her life, as for him whom nature has so formed no other condition is tolerable; and after adding the confession that she has not arrived at this clearness without deep pain and the greatest loss, but that she is now free and calm and impressible to all humanity, and to the Divine in human nature, having at last arrived at the conviction that love must remain the centre of union, "which alone forms our existence, and which, when every other illusion has passed away, still maintains the harmonic flow of life;"—after such outpourings, she continues, "I must tell you a word of my children. My soul lives in my children, as they feel, and I lead a very domestic life with them. The mornings here last till four o'clock; no one dines before that hour, and thus I can be very much with them. In the evenings I am frequently in company, or in the theatre—frequently also at my tea-table at home, with my small circle of acquaintance. Many Germans are here, and my house is a *point de ralliement* for them; but I see, also, many Frenchmen, and like them. The theatre is very interesting, the comedy excellent. The polish, politeness, and superficiality of the French in their manners and feelings are frankly revealed in their pieces, in the manner in which they are performed. In tragedy this is perhaps more remarkable. I cannot imagine how one can ever feel moved by them; but they are highly interesting, because the performance of the principal actors is a perfect

work of art." A second letter from Madame Humboldt describes her domestic happiness more clearly. "My little ones," she says, "would please you. Li (Caroline) grows very amiable; she is delicate, and has a rare degree of sentimentality, perfectly natural, however, as you may imagine. Her brother William is handsome, much more rough, very naughty, self-willed, and yet exceedingly good-natured. Theodore is the most amiable child I ever saw—he is stout, and almost fat, and yet looks slender; his little face has an expression of merriment, and yet his glance seems to indicate something more profound. His eyes are as if you gaze into the heavens. The white in them is quite blue, and the eyeball brown. His hair is light, and his mouth the prettiest I ever saw in a child. If you could see the boy, he would make a fool of you, as he does of me."

In the spring of 1798, Humboldt enjoyed the pleasure of his brother's society in Paris for some time. He came to Paris with the intention of joining Capt. Baudin's expedition, but when that was abandoned, and other attempts to organize an expedition had failed, he repaired to Spain, where he met with assistance from the court, and started on his first journey from thence.

The house of Humboldt in Paris was the centre of union for all the Germans who in any way merited being guests there. Even if Humboldt devoted himself principally to his studies, and to those men with whom he could maintain an adequate intellectual intercourse, his wife formed an attraction for the most various kinds of talents, and German artists especially were sure of her patronage and attention. The French painter David attracted a considerable number of young artists to Paris, and among the German ones especially the painter Schick, the sculptor Tieck, and others. Among the interesting men at that time staying in Paris we may mention Gustav von Brinkmann, who contributed some clever epigrams to Schiller's "Horen, and Almanack of the Muses,"

and was on the most intimate terms with Madame de Staël, Humboldt, &c.

But among the Germans then residing in Paris few interested Humboldt more than the well-known hermit, the Count von Schlabrendorf, a Prussian, a man of great and comprehensive mind, versed in the modern French circumstances as few others were, and addicted beside to a persevering study of human and rational life, of political considerations, and even of language, and resembling Humboldt in liberality of thought as much as in elocutionary talent. It is, therefore, not surprising that they should have esteemed each other highly. Varnhagen von Ense, who wrote a very clever account of this eccentric man, relates, among other things, how he, being accustomed to speak for hours uninterruptedly in the most beautiful connexion, with the most vivid phantasy and increasing energy, once was so lost in discussion with William von Humboldt that he early one evening accompanied him to the stairs, candle in hand, and he was found the next morning on the same spot still, engaged in earnest debate with him. Humboldt has testified the great interest he took in the Count in a letter written to Varnhagen, after the latter had published the above-mentioned memoir. It is dated 5th March, 1832: "I have read your account of our ever memorable friend with great pleasure. It has most vividly recalled to my mind, the time of my intimacy with him, and it seems to me that you have been very successful in giving so much of his traits of character and mode of action, as might give the public an intelligible idea of him, and that even his more intimate friends will acknowledge the resemblance. You must not be disappointed because your memoir does not give the entire impression, which we might desire, of this dear and venerable departed friend. There are mediocre and great men whose merits and advantages can be counted at once and easily, but Schlabrendorf was not

one of these. He required to be thoroughly known, and more than known, really felt. Whoever was not enchanted with him in the first days of acquaintance, and whoever did not prove at once that he possessed the sense for comprehending him, with such an one every discussion was vain, as I often convinced myself. It is, therefore, not possible that any description could exist which should give his true inner being, one of the most remarkable which has ever existed on earth, combined of a melancholy sweetness and gentleness, and the most indomitable courage." We may be permitted here to insert an anecdote which Schlabrendorf told of his friend. "In Paris," he says, "there lives a count K—n, a very good man, as I think, but weak. Once, when he had just left my room, Humboldt said, K—n is a very good soul, but I would rather be his father than his son. I could not help laughing at the idea; but there is deep thought in it. I called upon Humboldt in joke to name one person among his circle, whose son he would like to be from choice, and whom he would love with pure gratitude." Probably, in 1798, Humboldt would have chosen none but Schiller.

The French world, in which Humboldt now for the second time lived, was full of interest and excitement. A new social life commenced with the political apathy under the Directory, and survived its fall. Manners, laws, and intellectual life were confirmed, and everything began to adopt that physiognomy which characterizes modern France. The representative of this change was a great woman, daughter of the revolutionary minister Necker, and wife of the Swedish ambassador, Baron von Staël. She was one of the greatest literary capacities of these years; and, as such, could not escape Humboldt's attention. He esteemed her highly, and praised her works. Madame de Staël was an enthusiastic admirer of Humboldt, and called him always, *la plus grande capacité de l'Europe*. She was not less intimate with Madame von Hum-

boldt, lived for some time with the family, at Rome, and saw them again in Paris, in subsequent years.

Before we accompany Humboldt on his journey to Spain, we must mention an essay, or letter, which he sent from Paris to his Weimar friends,—probably to Schiller. The essay is, “On the present French tragic stage,” and was printed anonymously, in a journal edited by Goethe. It describes the French stage mannerism, and compares it with that of the German actor, who, he says, merely continues the work of the poet—gives the feeling and expression, without at the same time uniting in himself the talents of the artist and musician, thus making the character he represents an independent work of art. The French artist, on the contrary, exceeds in an opposite direction, and exaggerates nature; while the true ideal of representative or dramatic art unites the two qualities, modifying excess on both sides.

It is probable that the letters which Alexander wrote from Spain had determined Humboldt to undertake a journey thither. The events in France made a stay in Paris daily more inconvenient for foreigners, while Spain was now again at peace. Madame von Humboldt wrote home, in February, 1799,—“At latest my return to Berlin will be in about a year and a half. Our plans are so. End of next month we leave this place. I shall stay in the Pyrenees with the children during the summer, and Humboldt will, in the meantime, travel to Madrid, perhaps to Lisbon. In autumn he will join me again, and then we shall decide whether we live in Paris for the winter, and return home by way of England, or whether we can proceed from the south of France to Italy, and then return to Germany through Switzerland. Either of these plans would bring us home in about eighteen months.”

The Spanish journey was realized, although later than the letter states, and Madame von Humboldt, with all the children, accompanied her husband

through the entire Spanish peninsula. The family left Paris in July or August, 1799, and repaired to the south of France. From the shores of the Garonne, whose fertility Humboldt admired, they reached the northern point of the Pyrenees. We do not know how long the travellers remained here; they crossed over to Spain at St. Jean de Luz, in Bidassoa. From Bidassoa William von Humboldt and his caravan came to Biscay. Biscay and the Basque nations made the most favourable impression upon him, and excited a lasting interest. This nation—melted down to a small handful, while it was once spread over nearly the whole of the peninsula, and whose language, like, probably, no other in Europe, has remained almost unchanged from the earliest periods—had for him a great attraction, and was a desirable means for attaining to a more profound knowledge of the original inhabitants of Spain. The language of the Basque nations charmed him by its strange construction; the people, by their honesty and fidelity, by their partiality for their valleys, and their jealous love of their peculiar liberties and laws. The Spanish Basques, especially, excited his interest. If the French have more French sprightliness, the Spanish have the Spanish seriousness, though not the sternness of the Castilian, with whose indolence the industry of the Basques, and their good-natured cheerfulness, form a most agreeable contrast.

Humboldt entered the Biscayan soil near the boundary fortress of Fuenterrabia, on that portion which bears the name of Guipuzcoa. It was early in autumn when he reached these lovely mountain districts and valleys. The family journeyed across Tolosa to Vittoria, the capital of the district Alara. Here, as in all towns, the paintings in the churches and private galleries occupied his attention greatly. In Vittoria, especially, he praises a Magdalen by Titian, in the house of a Marquess de Alameda. The sketches which Humboldt has published of this journey conclude with his entrance on Castilian soil.

Our travellers soon reached the shores of the Ebro, and journeyed to Madrid across the barren plains of Castile. Humboldt's descriptions and impressions of this portion of the Spanish peninsula are only recorded in his letters to Goethe, and we have, therefore, no clue to them until this correspondence shall be published. We know only so much respecting the southern and western portion of Spain, that we can about gather what occupied him most there. When he composed his elegy to his expected son in January, 1800, in the Sierra Morena, he had been in Cadiz, had admired the splendour of the southern sea and the beautiful bay, had visited Lower Andalusia, Seville, and the mournful ruins of old Italica, and had traversed the immense ruins of the twice-destroyed Saguntum, the present Murviedro, and had crossed the happy plains of Valencia. These excursions prove that, next to the beauties of nature, nothing attracted him so much as the remnants of a classical world, which he found in these regions.

Our travellers must have learnt something of the perseverance of the Spaniards, for the family accompanied Humboldt on all these pilgrimages; the eldest daughter, about eight years of age, always in boy's clothes, and Madame von Humboldt in a critical state of health. One point which especially captivated Humboldt's attention was the Montserrat, near Barcelona, to which he made an excursion in March, 1800, and which he has beautifully described in a letter to Goethe, published in a geographical journal at the time, and now included in his collected works.

The journey was made on mules from Barcelona, through the valley of Llobregat. The Montserrat stands, as is well known, island-like, rising in the midst of the plain. Near the summit of the mountain, in it as it were, and surrounded by cones, on whose summits pious enthusiasm has planted those hermitages, stands the Benedictine cloister of the mountain. Humboldt was entertained by the monks with their celebrated hospitality. He gives a detailed

description of the mountain, of the arrangements and constitution of this peculiar world, and the life and character of the people who take refuge in these solitudes. From the cloister he leads the reader to the hermitages surrounding it; speaks of the extraordinary play of clouds beneath his feet, of the sea, the mountains of Rousillon, and the snow-covered tops of the Pyrenees in the distance, in an entirely peculiar manner, a master-piece of art. The letter concludes by an extract of a letter from his brother, who had visited the mountain in the previous year, and examined its mineralogic constitution.

The great Spanish journey terminated at the eastern point of the Pyrenees, and amid the plains and mountains of Catalonia. It was of lasting influence upon Humboldt, for this country, and this nation, especially, afforded him a treasure of enjoyment and instruction. The acquaintance with this southern primitive nation not only extended his knowledge of humanity, but it annihilated many of the prejudices existing against the character of this people in the rest of Europe. It is probable that Humboldt was one of the first among German statesmen who lent their attention to the Spanish rebellion. The peculiarities of the nation, and its various tribes, also afforded plentiful material for political instruction and reflection.

The fruits of this journey in art and science were not less abundant. His love and his appreciation of the fine arts, especially of painting, was increased, and also his knowledge of antiquity, and of the architecture of the ancients. The Basque language had excited his especial interest, and induced him to further investigations, and finally his journey was prolific for his other philological studies; in Spain, and afterwards in Rome, he brought together such a numerous collection of American dictionaries as had never before existed.

✓ In the spring of 1800 Humboldt with his family returned to Paris. Imminent and threatening wars

defeated all plans of travel, while Paris could be safely inhabited beneath the protection of the consulate, therefore departure from thence was postponed to the winter.

The life in Paris was spent as it had been on the previous occasion, and all the eminent Germans and other talented men living in Paris again frequented Madame von Humboldt's saloons. Among others whose society they enjoyed was that of Rahel Levin, who visited them here, and with whom a great intimacy seems to have subsisted.

In May, 1800, Madame von Humboldt was again confined of twins, a boy and a girl, of whom the former died shortly after his birth; the girl was named Adelheid. The birth of these children had been greeted in the elegy mentioned upon a former occasion. The departure from Paris was now again delayed, but in the spring of 1801 everything was prepared for it. On the last day of May they intended to proceed to Erfurt and Jena, and spend the winter in Tegel, when a sudden plan again delayed the journey a few months.

After the Spanish journey, Humboldt had devoted himself principally to the study of the Basque. Paris afforded him opportunities for this which he would have found nowhere else. He immediately planned a Basque-Spanish dictionary, compiled from the rare works and manuscripts in the extensive royal library. Many of the latter he copied verbatim, and received some pages on the language of the Basques from St. Croix, an eminent French philologist.

But all this did not satisfy his desire for knowledge. On the point of departing for Germany, he turned suddenly again to the south. This time he left his family in Paris, and undertook a second journey into the Spanish and French Basque provinces, with the intention of completing, by verbal communication, what was much too imperfect in the printed works. He spent several weeks in the most retired mountain-districts of the country, and especially sought out the

linguists there, before all, D. Pablo Pedro de Asterloa, pastor of Durango. He examined the important manuscripts this pastor had collected, and made extracts or verbatim copies from his great yet unpublished work. Another linguist whom he visited was the pastor Moguel, in Marquina, one of the first philologists in Biscay, who translated the commencement of the "Sallustian Catiline" for Humboldt.

Humboldt was, however, not equally successful in attaining all the purposes of his journey. "It was," he says, "one of the principal objects of my journey to Biscay, to find the traces which might still exist of the oldest history and oldest condition of the people, in old sagas or in national songs. But I was quite disappointed in the hope of finding anything of importance. In no other country has the mistaken zeal of the earliest Christian inhabitants been so successful in destroying all traces of heathen antiquity. It is impossible to attain a satisfactory account of the constitution, religion, or manners of the ancient Basques; and but a very few traces of these old times have survived in the language, the popular names of the months and days, a few proper names, national dances or fables." Of old songs he could only find one very imperfect fragment, whose age also seemed to him doubtful for many reasons. He met with it in a collection of manuscripts in the house of M. Heugartegui, of Marquina.

Humboldt noted down his remarks on the spot where he made them, and then hastened back to Paris to his family. His interest in the Basque nations remained equally strong for years, but the change of residence, as well as of occupation, prevented his publishing the results of his researches until a much later period.

In the summer of 1801 the whole family returned to Berlin through Erfurt and Weimar, and lived there and in Tegel a year. During this time the youngest daughter Gabriele was born.

This lengthened sojourn in their native town was made more agreeable by the improvement in the intellectual life of Berlin which had taken place during their absence; and it must also have afforded Humboldt the greatest pleasure to find that Schiller's works were successfully represented on the Berlin stage. It was also of interest to watch the statesmen who were preparing themselves to gather round their king and his noble queen, and save Prussia from the state of corruption into which it had fallen, and whose names gave great promise of the future. Still Humboldt would not have felt induced to exchange his leisure and independence for public official service, had not the requirements of the latter accidentally harmonized with his own plans. The Prussian minister in Rome had sent in his request for dismissal, and Beyme, a privy councillor of the King of Prussia, proposed Humboldt as the future minister resident in Rome. This post was well adapted for the classically-educated and art-loving man, as he would there have abundant and the best opportunities of devoting himself to his intellectual development. He anticipated only advantage from his stay in Rome, combined as it would be with some business occupation. When he had been in Rome some time, he wrote to Schiller: "I was in no desirable mood in Berlin, and even in Paris. I had been in no fortunate productive vein for some years; I knew so many things, and some better than many others, and yet they would not combine to a result, and I could not be satisfied with the active part of my existence. It seemed therefore better to me to give my activity a positive, even if it were only a common, occupation, and I sought only for one which would at the same time take me again to some important spot." At the same time he assured Schiller that nothing would make him forgetful of his higher calling, and it was on this occasion that he told him that ideas would always be to him the highest in the world. "But it is also true," he continues, "that if all one's time is

leisure time, and no compulsion forces a positive application of it, much time would be lost."

Under such auspices, Humboldt entered upon his diplomatic career. He was made a chamberlain, and was appointed privy councillor of legation, and resident minister at the papal court, and departed for his post, in the autumn of 1802, accompanied by his whole family.

But he did not depart without having taken leave of the friends of his heart. In Halle he visited Wolf; in Weimar, Goethe and Schiller. He also took with him a young philologist, Dr. Riemer, as tutor to his children.

He did not then imagine that he should not see Schiller again, for the latter was now at the zenith of his activity. The friends conversed much of Rome, and Schiller imparted to him a plan for a history of Rome, which he was deferring to days when the poetic inspiration might perhaps have left him.

Filled with such impressions and ideas, Humboldt with his family crossed the Alps.

CHAPTER VI.

WE now enter upon one of the most important periods of Humboldt's life, one to which he ever afterwards referred with love and gratitude. He arrived in upper Italy and in Milan in October, 1802, and it is probable that he visited Venice and Florence on the way to Rome, as he did not arrive in the dwelling which had been prepared for him, the Villa di Malta, till the 25th November. This villa and former summer residence of the knights of Malta, inhabited also by the Duchess Amalie of Weimar and Herder, and now the property of King Ludwig of Bavaria, is situated at the foot of the Pincian Hill. A high turret, monasterical arrangements, many stairs through outbuildings and wings, a whole club of houses grouped round lovely gardens, and favoured by the most beautiful views towards all sides, that is the seat which has already harboured so many artists and art friends, men of all nations, and which now became the residence of the Humboldt family. From the wing which they occupied they enjoyed the view to the South-east; the distant prospect over the Campagna to the heights of Albano was before them, and made a never-to-be-forgotten first impression. Friederike Brun, who lived in Rome at that time and in the same villa, has described their arrival:—"After long waiting, a heavily laden travelling-carriage drove slowly up the steep ascent. The father has already descended; a little child which can walk, and a very small one carefully wrapped up, are handed out to the nurses, who have also descended. Now one, two, three

boys jump out of the carriage, and then the fatigued, anxious mother." The eldest daughter had again made the journey in boy's attire, Adelheid, the next one, was only in her third year, and the youngest was about six months old and seemed not likely to live much longer. The mother had not recovered from the severe illness she had undergone in Berlin. The youngest child soon, however, revived under her care, "and scarcely," continues our informant, "had our amiable neighbour been a fortnight in Rome, when, in spite of her cares by day and night, we saw her beautiful eyes, radiant with love and mind, brighten again, her chesnut hair curled round her lovely head, her cheeks bloomed again, and the expressive mouth smiled with its charmingly mischievous smile."

The family was soon settled in Rome, so that they only complained of the smoky chimneys. Dr. Riemer took charge of the boys; a German doctor whom they had brought with them to Italy, Dr. Kohlrausch, gave his, not, alas! always successful medical services to the family.

From the first day of their arrival in Rome their hospitable house was thrown open to their friends and acquaintance, who were invited once for all to tea every evening. The first winter was spent in intimate intercourse with the artists resident in Rome, especially Thorwaldsen, Schick, Reinhard, Keller, Lund, and with Zoëga, Fernow, Bonstetten, Friederike Brun, and others.

Humboldt himself was also soon at home in the Eternal City. Alone with his wife, or only accompanied by the elder children, he wandered through its environs that he might revel in undisturbed enjoyment of its beauties. He refers to this period in one of his best sonnets, in which he says that two shadows gliding beside each other are frequently used as a comparison for intimate union, but that he and his companion were much more as one.

No land excited and satisfied so many expectations which Humboldt had formed, as Italy. Not only the

soil and the climate, but the people, their language, art, and literature, refreshed and pleased him. And his love for antiquity could in no other country revel amid such interesting associations. Italy was foremost in nearly all the branches of civic and political activity; and in the centuries in which the modern tendencies first rose in intellectual importance to oppose the ancient life, its history surpasses that of all other nations. According to Humboldt's opinion, no country can be compared to Italy in the number of eminent men which it has produced. The study of art and nature was developed here earlier than with any other nation. Even the tone and sterling strength of its language, its poetic fitness, filled him with admiration. Of all the modifications which the Latin has undergone, this seems to him as the most interesting, and he has made its remarkable formation the subject of especial consideration in the introduction to his great philological work. In no other Romanic language has the modern spirit remained so faithful to the ancient form, without detriment, however, to its independence or peculiar characteristic. Humboldt also acknowledged the great and beautiful in Italian art and poetry, which harmonized more with his spiritual tendency than the severe Northern art; so Raphael interested him more than Shakespeare, and Ariosto more than Ossian's shadowy creations. He only prefers the Germanic tendency where depth of meaning and truth of character is so ornamented with classic beauty, as we find it with the great modern German poets. He could not, of course, with all his appreciation of the Italian world and its greatness, overlook the present degradation of the people; but he forgave them, in consideration of what they had once been and once achieved.

If Italy, as a whole, was so dear to Humboldt, it was natural that Rome, the Eternal City, should excite an enthusiasm in him which was sometimes carried very far, but whose deeply-felt expression is irresistibly attractive to his admirers. Rome's great-

ness lies in its twofold past, and in the ruins which reveal it. These ruins seemed to Humboldt such a peculiar whole, that he grudged the spot another historical development, from fear that what already existed might be injured by it. He cherished this enthusiasm not only in the moment of enjoyment: the feeling for Roman greatness never left him, but stands forth as the theme of a whole course of sonnets, and is also expressed in an article on Goethe's second visit to Rome, in which he says—"Rome's greatness consists principally in something connected indissolubly with the whole; with the mixture of ancient and modern splendour; with the ruins which meet the eye for miles; with the plains, the mountains enclosing it, the long series of historic recollections, and indistinct tradition. This was plainly shown at the time when it was robbed of its best treasures of art, of the memorable remnants of antiquity, in a shameful and undignified manner. There will always be a great difference between countries and towns which were themselves the scenes of classical antiquity, and those which were never warmed by that first ennobling influence on humanity. In the latter, the antique works of art resemble only a collection of articles brought together from all parts; in the former, the soil itself is impregnated with the feeling, and seems to bear them in inexhaustible profusion, like trees and fruit." But few can share such high appreciation and enjoyment truly. The Romans know their city more from the reflex of the impression it makes on strangers, and the real traveller rarely can harmonize in such exalted feelings as those of Humboldt. It is only with the artists residing there that one can associate; with such who make it their intellectual and spiritual home; who commence studies there, or continue former ones, or give themselves up entirely to the pure enjoyment which is afforded to all the senses, and yet affords such an inexhaustible depth for research.

Humboldt wrote a long elegy, entitled "Rome,"

which was published with his name in 1806, in Berlin. It is the largest poem he has written, and may be considered one of the most remarkable poetical productions, both for its sentiments and the highly-poetical form.

This poem is written with great ease and clearness; and only where the poet soars into entirely ideal regions, as towards the conclusion, his thoughts refuse to take a very comprehensible form. The poem was originally dedicated to Humboldt's friend, Frau von Wolzogen, whom he addresses in the last verses.

The Humboldts left the Villa di Malta in March of the following year, as it was too small for them, and removed to a more roomy residence in the Strada Gregoriana, on the Trinita del Monte, quite near the Spanish Place, which was the central point for strangers; and here only was Humboldt able to make his house a temple of hospitality, open to every worthy comer.

From his large, lofty rooms, high windows afforded the most beautiful view, and his house was truly Italian in its architecture, while German sociality reigned within. Every evening the most mixed society was gathered together at tea, and reminded those present of Berlin or London companies. The theatre only disturbed this arrangement sometimes, and then Humboldt did not fail to take as many friends as possible with him. Select friends were invited to dinner, and after dinner they frequently drove friends or strangers in their carriage through the town and its environs. Report says that a central reunion, like the one offered in Humboldt's house, has not since that time existed in Rome.

High and low met here; the stream of strangers which constantly flows through Rome visited these halls; all intellectual and artistic celebrities were united in it, before all the German artists resident in Rome. For a quiet mind, the crowd which met here every evening was almost too much. Here a cardinal conversed with a German professor; there a painter was obliged to converse for hours with a duchess in

languages he barely understood. In the background Humboldt conversed with his friend Zoëga; while Lucien Bonaparte was paying his court to the lady of the house. Madame von Humboldt, while she did the honours of the house, displayed more than anywhere else her great social talents. She was the soul of this splendid circle, which she filled with her mind and amiability,—not her husband, who lived more for a few chosen individuals. Such was their reputation at the time, that few books written on Rome or Roman life at that period neglect to name them with praise and respect.

In autumn a pause generally intervened, for then Humboldt repaired to the country for some time with his family. Immediately after his arrival in Rome he hired a summer residence in Ariccia, and went there in July of the following year; but a domestic misfortune occasioned their quick return to Rome, and made them take an aversion to this residence in future.

In the autumn of 1804, we find him in Albano. Here, and in the neighbouring Marino, he made a short stay every year, and excursions to more distant points were sometimes undertaken from here; but we know nothing of longer journeys to different parts of Italy, which he must doubtless have made. We do not know whether he was in Sicily—how he liked Florence—not even that he visited Naples; though so much is sure, that nothing, to his mind, equalled the influence Rome exercised over him.

Unalloyed happiness rarely falls to the lot of man. Perhaps it is that we may the better enjoy its pleasures that pain is mingled with them by fate. In the first year of his Roman residence, Humboldt met with a heavy loss, that of his eldest boy. Since July 1803 his family had been frequently in Ariccia, to spend the hottest part of the summer there in the cool air. In this summer the heat was insupportable even in the hills, and the strangers especially fell victims to it. About three weeks after this misfortune

Humboldt writes to Schiller: "Rome, 27th August. I write to you, dear friend, with a sad heart. I may say that, since I live, the first misfortune has befallen me, but this first blow is almost the severest that could have come." His eldest son, Wilhelm, had been suddenly carried off by a malignant fever. The child had scarcely been ill a few days. A slight attack of fever was followed by violent bleeding of the nose. The family was in Ariccia, but Dr. Kohlrausch—a doctor who did not perhaps merit such confidence—was with them. He did what he could, but in thirty-six hours the boy fell a victim to the violence of the attack. "His death"—so writes his afflicted father—"was calm, very calm; he had cheerful dreams,—did not suffer nor expect death. He now lies at the foot of the pyramid of Caius Cestus, which Goethe can describe to you. I have lost very much with this child. Among them all, he was most fond of being with me; he scarcely ever left me, particularly during the last few months; I occupied myself regularly with him; he always walked with me, asked about everything, knew most of the localities and the ruins, and was every one's favourite, because he spoke with all, and in tolerably good Italian. Now this is all gone! This death has robbed me of all my confidence in life. I trust no more to my fortune, to fate, to the strength of events. If this impetuous, blooming, strong life could be extinguished so suddenly, what then is certain? And, on the other hand, I have all at once gained an infinite conviction: I never feared death, nor had a childish love of life; but if a being we love is dead, the sensation is different. We think ourselves at home in two worlds."

Immediately after this blow, the family hastened to the town, for a similar misfortune threatened another child. The younger boy, Theodor, was attacked by the same illness, a severe brain fever, only with less suddenly dangerous symptoms. For three days his recovery was despaired of, but he was saved. It may be imagined how much the anxious mother suffered

during this time, and Humboldt states that she behaved with extraordinary calmness and self-possession. He afterwards feared a sudden outbreak of the repressed evil, but it did not appear, and all things would have gone on as before in Humboldt's house if the loss could have been so easily forgotten. A friend of Humboldt's writes, on the 2nd September, 1803,—“The sadness which reigns in this formerly so merry house, the only one I frequent, and whose inmates are the most amiable people I know, has quite depressed my spirits.”

Schiller was also much affected by his friend's loss, and announced it at once to Goethe. He says in his letter,—“From the inclosure you will see that our friend Humboldt has been sorely afflicted. Write to him, if you can, a word of sympathy. I pity him much, for this child was the most hopeful of them all.” On the 12th September, he writes to the afflicted father: “In this sad event I can do nothing but share your grief. You were justified in cherishing the brightest hopes. Everything was combined to promise a happy life to the boy, and now all these hopes are violently destroyed. Like you, no great affliction has hitherto visited me, and I cannot refrain, on this occasion, to look into my own heart, and fancy the possible loss of those dear to me. With my failing health, I had attained to the firm conviction that I should never be so situated, but your loss, my dear friend, convinces me that all these calculations are deceptive.” He advises him at the same time, if the climate should be too trying for his wife and children, rather to set aside all other considerations, as he was always master of his own fate.

Hereupon Humboldt breaks out anew into complaints: “The loss I have suffered,” he replies, on the 22nd October, “is ever present to my imagination, and nothing can compensate for it. Even in the first moments, dearest friend, the pain did not deprive me of mental clearness, or of a certain calmness. But a sadness and longing overpower me since that unfor-

fortunate epoch, of which I can give you no description. It seems to me, that the death of a child has something more affecting than the death of an adult person. Not ruled yet by its own will, it trustfully follows that of others, and it seems as if one had deceived its careless confidence, even if death is only the result of mere blind fate.

"Dear Schiller, why are you not here now? For that I left you, I do not like to think. Rome has enchanted me in every way, and it is even difficult to leave the soil to which one has entrusted one beloved thing. You may imagine that I should not remain a moment here, if I had to fear the least danger for my family." But this, he says, is not at all the case. Peculiar circumstances had been combined in the one unfortunate case; the blooming health of the other children showed that the climate was not unfavourable. "You should have seen poor Wilhelm a day only before his illness; and the Princess Rudolstadt will tell you that he bloomed like a rose, and death has disfigured him but little. You can, therefore, let me remain here a few years longer. I cannot tell you how I enjoy this residence. Here everything is inspiring and cheering. I am more fruitful in ideas, and even the sadness, even the bitter pain, leaves a clearness and cheerfulness of mind."

In the commencement of the following year, soon after the loss above mentioned, Madame von Humboldt gave birth to a daughter, who died very soon. She was, however, in such a delicate state of health, that she undertook a journey to Germany to restore it. Her doctor, Dr. Kohlrausch, accompanied her. The newly-born child seems to have died on this journey. She visited the friends in Weimar in May; it must have been a painful pleasure to Schiller to meet her again in such bad health, and he does not conceal to Humboldt that he felt uneasy about her. From Weimar Madame von Humboldt repaired to Paris, as it seems, with the intention of gathering

speedier intelligence of Alexander von Humboldt, whose return was anxiously anticipated.

Humboldt had received a letter from Havanna, from his brother, announcing his approaching return, but soon afterwards the report was spread that the celebrated traveller had died of the yellow fever, when he was on the point of embarkation. It now happened that Madame von Humboldt was in Paris, when Alexander, with all his treasures, entered the Garonne, in August, 1804. As soon as the news of this happy event arrived in Paris, the sister-in-law was at once informed of it by the secretary of the National Institute. Alexander hastened from Bordeaux to Paris, delighted to meet here a member of his family whom he had not anticipated seeing till the commencement of the following year in Rome.

Madame von Humboldt, after another confinement in the autumn of 1804, left Paris in the spring of 1805, and with renewed strength joined her husband, who had, in the mean time, spent a happy summer, devoted to solitude and study, in his retreat of Albano. The new comer was a boy, and was named Gustavus, but died after a few years, in 1807, in Rome. Both sons are buried at the foot of the Cestius pyramid, the well-known burial place of protestants in Rome; but they lie in an inclosure presented by the Roman people to this family. Two broken antique pillars designate the spot where the children rest.

The year 1805 was the finest which the family spent in Rome; not only that a great number of distinguished men were living in it during this period, but in spring, Alexander arrived on a lengthened visit to his brother.

The six years which William spent in Rome, were, in reality, also years of leisure, for the official business he had undertaken occupied him but little. Schiller had feared it, but Humboldt assured him that this was not the case; that he lived as before, even if he

had not quite so much time at his command. "You must remember," he writes, on the 22nd October, 1803, "that my business here has little to do with politics. It does not therefore oblige me, as another embassy would, to spend my time in going to parties, and still less have I many cares or responsibilities. The most important part of my duties consists in single commissions; these generally refer only to private interests, and are important to me only in so far as it is expected that I should execute them in one or the other way; and, as it is interesting to prevent, as far as possible, the influence which they wish to extend from Rome over the most distant places. These things do indeed cost time, they occupy several days of the week, if I include the extensive correspondence they entail, and the writing, visiting, &c. The political correspondence, though it is a mere communication of news, has to be made, and, as I do everything myself, it certainly needs some degree of industry and order to accomplish all this, and have some leisure besides." In this he succeeded, and as he had wished to be forced to a regular application of his time, by some business compulsion, there was no cause to regret his choice and determination.

The post of the Prussian Ambassador to the papal court was a very favourable one at that period, and has probably never been so to such a degree since then. Before Pius VII., who had only a short time previously succeeded to the holy chair, Prussia had no standing embassy in Rome. But at this period, for the first time for centuries, the Holy See was threatened by violence, and from a principal partizan of catholicism, while the other partizan had enough to do to protect itself, so that it could not save others. The struggle of France against the papal power, commenced already at the end of the eighteenth century; the head of the church was deposed and imprisoned. In 1800, the country was cleared of its enemies, who, however, carried off some of the most

valuable works of art. Some years of peace followed, but with the increasing good fortune of the French emperor, these insults were renewed, and when Humboldt left Rome, the immediate destruction of the papal dominions seemed approaching.

All the weapons of the hierarchy, submission or opposition, were alike inefficient against Napoleon's power. The pope went to Paris in 1804, to crown Napoleon, but in vain. With the seizure of the citadel of Ancona, a new series of hostilities commenced, which terminated in July, 1809, with the imprisonment and abduction of the pope, and with the incorporation of the dominions of the church in the French empire.

In such times of distress and ill usage by old friends, those rise into favour who were before more disregarded or treated with suspicion. Prussia, which had offered no insults to the pope, and was even defeated by the common enemy, made this experience, and was treated with more consideration, as it sent such an extraordinary and skilful representative to Rome as Humboldt, an individual who imposed respect in every situation, and whose peculiar talents were perhaps better esteemed in the Vatican than subsequently, sometimes, in great assemblies of European diplomatists. His partiality for antiquity, for art, his patronage of foreign artists, not only German or Prussian, which he exercised liberally, and in which he has since been imitated by all the ambassadors of Prussia; the hospitality and liberality of his house, at a time when want and distress frequently reigned in Rome; all this gained for Humboldt the especial favour and esteem, not only of the government, but of the Roman people.

This was shown on every occasion. If a great solemnity, a canonization, took place, tickets were always reserved for him and his friends; sometimes even the cardinal's box was given to him. Another time, a foreign, but not a Prussian artist, had insulted an eminent person in Rome, so that he was banished,

and no applications for mercy were of any avail. But at Humboldt's intercession, the matter was dropped. In his favour, the Romans even departed from established rules, and gave him freely what they had never conceded to the protestants. Their burial place by the Cestius pyramid is an open unenclosed space, and may not be enclosed or fastened. But to the family of Humboldt, the Romans voted an inclosed space among the other graves, and presented the spot to them.

Although Humboldt had, as he himself says, little to do with politics at the post in which he commenced his diplomatic career, it was yet very well calculated to develope in him the ability and finesse which characterized him so eminently in subsequent years. If there is a spot on which one can see through all the tricks and cunning of low diplomacy, and learn the greatness of the true science, Rome is the place. Gonsalvi himself was a head with whom alone it was worth while to be matched.

Of the other diplomatists acting in Rome at this time we need only mention Cardinal Fesch, as Neapolitan ambassador, and the Danish envoy, Baron von Schubart, who, being accredited also to the court of Florence, generally resided in Leghorn. Schubart was also celebrated as the patron of his countrymen, especially of artists. He was intimate with Humboldt and a welcome guest in his house, which was often obliged to receive titled visitors who had nothing but their rank to recommend them.

Humboldt and his wife took a lively interest in the works of contemporary artists. The latter showed her admiration for all branches of art, and she was indeed more partial to the romantic style of painting than her husband, whom the bright figures and severe forms of the ancients, and our classic poetry, had rendered more averse to the sombre, confused, and sometimes even morbid character of many of the modern art productions. Besides this, poetry alone had occupied him in his youth, and the other arts only when his

archæological studies had rendered it necessary. His greater journeys, however, tended to cultivate his love for art in all directions, except in music, for which nature had denied him any talent.

Strange that Humboldt should here also greet and assist the progress of a better time. The art of painting applied itself, with great success, to emulate the depth, warmth, and beauty of a Raphael and a Michael Angelo. The poetic feeling of the German nation was destined to give at least an imitation of that great past. At the same time young sculptors endeavoured to conceive their representations strictly and purely in the spirit of Greek art, and to refrain from every vain ornamentation. Thus in both arts Germans achieved what had been denied to the most eminent talents of Italy and France. This renovation proceeded from a few. In painting, the first were Asmus Karsten from Schleswig, with the two Würtemberg artists, Eberhard Wächter and Gottlieb Schick; in plastic art, the Dane Thorwaldsen, and the German sculptor Rauch, who followed close upon Thorwaldsen. When Humboldt arrived in Rome, Karstens had unfortunately already expired, and the surviving veteran Wächter had returned to his native country, but Thorwaldsen had achieved his first triumphs, Schick had but lately arrived and found a congenial sphere here, and the young Rauch arrived soon afterwards. The first celebrated modern works of art were produced in quick succession; before all, Thorwaldsen's Jason, and Schick's Apollo among the Shepherds.

If Humboldt owed a great part of his artistic education to his Roman residence, he has richly compensated this gain to the artists in Rome. For it was more than common hospitality that they enjoyed in his house. He and his wife advanced art and artists with advice and active assistance. They cared for them when they fell sick, they assisted them with funds, so that they might not be forced to give away their works below their value. They gave large orders, and had great influence in introducing artists and

their productions into the first society, and thus obtaining reputation and honour for true art.

When the Humboldts arrived in Rome they found Thorwaldsen already there, and an inferior German sculptor, Heinrich Keller, from Zürich. Of painters they had the Austrian pensioner, Abel; the young Schick from Stuttgart; then the landscape-painter, Carl Reinhardt; the well-known veteran of German art in Rome, Joseph Koch, Tyrolez, and the Englishman Wallis; the drawer and copper-plate engraver, Imelin; the landscape-drawer, Carl Grass; and the portrait-painter, Angelica Kaufmann. Each year brought a new relay of talents, principally of those who had already adopted the modern romantic school. Among these are the sculptors Rauch and Franz Tieck; of painters, the two brothers Riepenhausen, Wagner of Würzburg, Jagemann of Weimar, Platner of Leipzig, and Leybold and Steinkopf from Stuttgart. We must not forget Muller, who is indeed better known as a painter, and who remained an amateur in art, but who is valuable as a connoisseur and critic. Humboldt seems to have been partial to Imelin, and names him to Schiller as an extremely upright man. Grass also was a welcome guest. He was not a great artist, but a variously cultivated man, and an enthusiastic admirer of Schiller, and best known for the description of a Sicilian journey. His poetry was only a poor imitation of the great master. His talent seems to have been devoted to the "Morgenblatt," which contained his "Farewell to Summer," dedicated to Madame von Humboldt. Humboldt himself joked with him. Thus we are told by some one who visited the family in Albano in autumn, and who purposed looking at the country before dinner, that Humboldt said, "If you should meet a man whose one shirt collar falls down while the other rises up very high, you have that genius the landscape-painter Grass before you." The stranger found this satirical announcement confirmed by the reality.

But Schick, Thorwaldsen, and Rauch, were those

who received most attention and consideration from the Humboldts; and Thorwaldsen subsequently made one of his finest works, his *Speranza*, for Madame von Humboldt. They also soon detected the great talent of the painter Schick. They had met him in Paris, where he had commenced his first studies under David. In Rome his tendencies were more developed, and they showed him every favour. He was almost looked upon as an inmate of the household; and he had reason to mention these favours in the most grateful manner in his letters home. He wrote, in April, 1803, to his family in Stuttgart: "The house of the Prussian ambassador is the place of rendezvous for all the eminent men in Rome; of all those who visit there, I am almost the only one who has no title and is of humble extraction, and yet hundreds of proofs have convinced me that I am not the least liked among them. I owe it to this family if my ideas here expand." Another time he relates that Humboldt had composed the dedication with which he accompanied a picture for the Duke of Wurtemberg. Schick was also an excellent portrait-painter, and has executed most beautiful productions in this respect for Humboldt; works which belong to the finest things that modern art has produced, and which are now ornaments to the castle of Tegel. They are as follows: 1, the sketch for a family picture, the mother surrounded by her children; 2, the portrait of Madame von Humboldt and one of her sons; 3, the portrait of the eldest daughter, with a guitar in her hand, a full-length full-size portrait; and 4, a splendid oil-painting, the two youngest girls, Adelheid and Gabriele, who, embracing each other, sit barefoot on a wall. These and many other works Schick made for Humboldt while resting from his greater historical works. Humboldt did much to extend Schick's fame in Rome, and subsequently in Vienna and Berlin. Schick unfortunately fell ill in a few years, and could therefore not accept their kind invitation to Vienna. He would probably have found a remunerative ap-

pointment in Berlin, which Humboldt was endeavouring to secure for him, but he died shortly after his return to Germany, in 1812. An unfinished oil-picture—Christ as a youth, sleeping, and guarded by angels—Madame von Humboldt was anxious to secure at any price, but the family would not sell it. The third of the artists they distinguished was Rauch. He came to Rome in 1805, and during six years was received by them with affectionate hospitality. He made some statues for the family during that time—namely, Mars, and Diomedes wounded, and the statue of a young girl, a daughter of Humboldt, which he subsequently executed in marble.

The country, its history, and the treasures contained in the town and its vicinity, were also of the greatest interest for Humboldt in his studies. What treasures are alone contained in the library of the Vatican! And how many things Humboldt found here which he would have sought in vain elsewhere, and which were especially valuable for his extensive philological studies, for which no one could offer more resources than the Propaganda of Rome. Humboldt frequently enumerates the works he met with in the extensive library of the Collegio Romano. He also collected American grammars during his Italian residence. The investigations into the Coptic language were in vogue just then, and the well-known museum of Cardinal Borgia, of Velletri, offered materials for hieroglyphic studies. Indeed, the classic soil could not but afford incalculable treasures to a mind which had from afar already penetrated into its sanctuaries.

All this, however, only occupied his genius very partially, and he was entirely without personal incitement. We cannot, therefore, wonder if we always see him look back longingly to his German friends. In this spirit he writes to Wolf, on the 20th July, 1805: "The pleasure I should feel in accompanying you here is beyond description. It would be, after years, the first truly intellect-satisfying conversation. The scientific society which can be had here is dry

and insipid. Even Zoëga, who certainly has extensive views, is wanting in lively interest. He is a universal indifferentist and sceptic; and though his erudition is not injured thereby, his conversation loses its charm. You would be interested in seeing Zoëga. My brother even remarked that his society is not at all conducive to excite the productive faculties, but rather the contrary. You know," continues Humboldt, "that Spalding (the philologist from Berlin) is here. But I have not enjoyed his society as much as I might have done. I find, indeed, that he has become more spiritless, and can speak of nothing now but of long and short syllables, and of etymologies. He was entirely occupied here with his whole family, wife, son, &c. Would you believe that during his visit of six weeks to Rome, I once found him, at noon, playing cards *en famille*. He did our nation little honour. Every one acknowledged his good nature; but his pedantry, his rage to make bad verses in all languages, and his shallowness, have alternately surprised and disgusted Zoëga, Marina, and all the better class. Imagine only that here, in the Corsinian Library, he copied thirty to forty Homeric—genuine Homeric—verses out of the Iliad, which were only not placed in their proper place as *new ones*, that he related his discovery to all, and pretended to have found barbaric words, such as *κεπετορ*, in them, nor would he let Zoëga convince him of his error till some days later. If he had only not boasted of all this so, and to me! He has made innumerable verses, and always German and Latin at the same time, and sometimes Greek also, but he will certainly not have profited in the least by his journey. He searched for Quintilian everywhere, and then scarcely looked at it. You will feel, my friend, that this impression of a German scholar needs to be wiped away.

"I know of no news to tell you. Here a new book is written about twice in ten years, and the remainder of the time it is talked of. You know what

is being done here. Antiquities are dug up now and then, here and there, but none of any importance, as these labours are not regularly or perseveringly prosecuted. Fea's discoveries near the Pantheon might be important, if he did not look at them in a very casual manner, then assert his opinion very obstinately, and then generally fill up the holes again, which is indeed the best way to escape contradiction."

Humboldt says himself, that of the Roman scholars he esteemed Monsignor Marini, the predecessor of Cardinal Mai as president of the library of the Vatican, most highly. Fea, the well-known editor of "Horace," is described in the above letter; and of the other Italian celebrities little can be said. Humboldt's most intimate scientific friend was, as we have already stated, Georg Zoëga, born in Jütland, but educated entirely as a German. His profound knowledge of antiquity of languages, and his accurate acquaintance with the topography of old and new Rome, made him an interesting companion for Humboldt. His amiable and fine nature had been, at an early age, broken down by care and misfortune, so that Humboldt found him sometimes a by no means cheering companion. But for Zoëga, in the last sad years of his life, this friendship was all the more beneficial, and Humboldt's house was the only one which the failing invalid still visited. Humboldt made him his companion in Rome and its environs, and he could scarcely have found a more appropriate one. He in return assisted, sympathized with, and inspired him in his studies. He no doubt joined him in his studies of the Coptic, and of the subsequently better-understood hieroglyphics. He took part in his investigations of the antique bas-reliefs, and in his topography of Rome. Very shortly after Zoëga died, Humboldt left Rome.

It is time now to refer to the intellectual productions of Humboldt during his Roman residence, and to such of these as have been published. Rome influenced his productive talent favourably, and if the

study of the place deterred him, as he says, from independent productions; if he called himself and his family, in joke, the people that spend their days in walking; if, also, his official duties occupied a portion of his time, and if he was carried away sometimes by a contemplative enjoyment of the great and beautiful in art, and sometimes by the demands of social life, we must consider, also, that he had accustomed himself from his youth upwards to a restless activity, and most conscientious application of his time; that he did more in hours stolen from his ordinary occupations than others in a lifetime, and that subsequently he found time, in the maddest whirl of business, and when overwhelmed with the most difficult affairs, to cultivate his favourite tendencies. How much more could he not do this while he was in Rome, with so much leisure to live for himself, in a circle which excited and elevated him, and where nothing existed of the circumstances which had so frequently depressed and annoyed him in Berlin and Paris. Here he felt himself more fruitful in ideas, and if he completed few works, he was in the real happy vein for production, and the creative, the poetic spirit, of which scarcely a trace existed in the days of Jena, developed itself more and more.

Two larger didactic lyric effusions are published, which were written during the residence in Rome—the elegy, “Rome,” which we have already referred to, and a poem to Alexander von Humboldt, written in Albano, September, 1808, which was published by the latter after his brother’s death. It was the reply of William to the great descriptions which his brother had given him on his return, verbally and in his “Views of Nature.” This first result of the great journey had been dedicated to him by Alexander, and the poem reflects the impression made by it; it transports us to the midst of that great and wild nature, the uncultivatedness and the distant future of this new world. It compares it with the poverty and the greatness of the old world,

shows the Indians the example of the Pelasgians and Hellenes, and gives an interpretation of the great laws of historical life. In matter and form this poem ranks with his two former ones, the elegy to his son, and that on Rome. In all we find poetry allied with the philosophy of history, as in Schiller's "Poems on Civilization," except that Humboldt's have a more personal subject, and that therefore personal feelings of enthusiasm have a freer vent in them, though they certainly are second to Schiller's in talent and perfection. It is, however, a fine testimony of fraternal love.

The other fruits of Humboldt's literary activity are mentioned in a sketch which Schlegel sent to Goethe in 1805, under the title, "Artistic and Literary News from Rome." He says, among other things, "Herr von Humboldt, the Prussian ambassador to the papal court, has completed a translation of the 'Agamemnon' of Æschylus in verse, and even of what is not lyric, the trimeters, the anapests, and the trochaic tetrameters, exactly in the metres of the original, with the greatest fidelity, and in a language worthy of the pathos of the old master. The publication of this production would be the more welcome, as we have hitherto only Stolberg's translation, which cannot be called faithful, either according to the spirit or the form. Herr von Humboldt is also continuing to devote his attention to linguistic researches on the Biscayan dialect, and to the origin and connexion of European languages in general. We wish he would publish something on ancient Rome, with whose ruins he has become perfectly acquainted during the few years of his residence there; such a work, composed not only in an antiquarian, but in an historical and philosophical point of view, could not fail to be very interesting."

The translation of "Agamemnon" on which Humboldt was employed during his residence in Jena, was entirely recommenced and concluded at once in Albano, during the summer of 1804. Schlegel now advised its immediate publication, but Humboldt kept

it ten years longer, so that he might correct and improve the most minute faults. Humboldt's linguistic studies now received a renewed impulse from the treasures Alexander had brought with him. The latter had during his journey collected, with infinite trouble, from cloisters and missionary establishments, a considerable number of books of hitherto unknown American dialects. He indeed lent this collection for a few years to the completer of "*Mithridates*," Professor Vater, of Königsberg, and submitted a few to Franz Schlegel, but he definitely gave them all to his brother, who was now able to include the new world in his studies, and to investigate these languages thoroughly. William even increased this collection of American grammars and dictionaries by new treasures found in Rome, and among other things obtained possession of fourteen manuscripts which had been copied from manuscripts of the Abbé Hervas and the Roman Propaganda.

Humboldt's merits were now acknowledged on all sides. F. A. Wolf publicly named him as the one who had assisted him in a profounder study of archaeology. The Royal Society of Sciences in Göttingen, in 1803, elected him and his brother as foreign members of their historical philological section, and in 1808, he was elected by the Royal Academy of Berlin as corresponding member.

The state also acknowledged his services. After having been named resident ambassador in Rome by a cabinet order of the 15th May, 1802, he was raised, in 1805, to the dignity of minister-resident, and in 1806 to that of minister plenipotentiary in Rome.

Humboldt had so accustomed himself to this city during a residence there of six years, that he thought never to return to reside in his native country. And he would have willingly remained there longer had not the terrible catastrophe overwhelmed Prussia which he had probably long anticipated, and in consequence of which he was required for more active service.

France had become mightier and more presumptuous under the empire, and the thunder of war, though distant, was heard in the ancient Rome. Austria's defeat in 1805 was bad enough, and of melancholy import to every German. Italy was threatened anew, the French advanced towards Naples, and though Rome's neutrality was for a time respected, its speedy destruction was anticipated. Prussia was still standing, though in a lamentable condition; it had again refrained from the general combat. It accepted, as the bribing booty from France, Hanover, which was then again secretly offered to its former possessor, so that Prussia, everywhere entangled, could no longer avoid the unequal combat. The ancient Prussian glory was destroyed at a blow; all the bulwarks of the kingdom fell into the enemy's hand, and only at the extreme points of the kingdom so much self-consciousness remained that the state fought for mere existence. The government tried to purchase peace at any price, in order to compensate for the loss of power and greatness by revival and encouragement of the inner strength of the nation. It endeavoured, before all, to acquire the means of effecting this internal improvement, which was to support the throne by means of all the talent, uprightness, and activity which might be pressed into the service. Humboldt watched these events anxiously, and patiently awaited their issues. When at last peace was proclaimed, the happy life he had till then led was embittered by the degradation of his country; even the possessions of individuals were endangered, and it seems that the castle of Tegel had also been plundered during these years; the aspect of affairs in the papal dominions grew more dangerous, and Humboldt determined to leave Rome and his family for some time, and repair to Germany on leave of absence. After having spent the autumn of 1808 in Albano, he left Rome in October, not foreseeing then that he would not return. He only took his son Theodor with him, probably

with the intention of placing him in some educational establishment.

On his return, he visited Goethe, and then repaired to his father-in-law, Herr von Dacheröden, in Erfurt. While there he received a summons to enter into another sphere. In December, 1808, the cabinet sitting in Königsberg offered him the post of director of the section of worship and of public education in the ministry of the interior, at the same time naming him a privy councillor of state. Humboldt declared himself willing to accept the post, reserving to himself the right to resume his diplomatic career whenever he wished, and his definite appointment was thereupon signed in Königsberg on the 20th February, 1809. He, however, had arrived in Berlin in January, 1809, where he spent a few months, before his departure to Königsberg. He placed his son in a Pestalozzian school, prepared to enter upon his official duties, and arrived in Königsberg in April.

Though it must have grieved him to quit such an agreeable life as his Roman one, his duty required it, and he did not hesitate to sacrifice his own predilections to the fatherland. He reserved the right to re-enter the diplomatic career, principally with a view to returning to Rome; but he had left his post there at the right time; for scarcely had he quitted the papal dominions than the long-feared catastrophe broke over it. On the 17th May, Napoleon decreed the incorporation of the States of the Church with the French empire, and on the 6th of July of the same year the Pope was led a prisoner from Rome.

CHAPTER VII.

THE unfortunate year 1806 had placed Prussia in a most critical position. Its existence even for some time seemed endangered, and at all events there needed, to secure it, or to repair the past and prepare for a better future, a fundamental renovation of what had been saved. In the youthful history of Humboldt's life we mentioned the period of political and social demoralization which had succeeded the reign of the great Frederic. With Frederic William III., a better man came to the head of affairs, but this good prince, still surrounded by tools of the former reign, was not able to avoid the catastrophe the times threatened; and as it seemed to threaten under every circumstance, he anxiously sought to avoid every collision, and at every occasion for battle was led only by his peaceful tendencies, which at last produced the greater misfortune. But this misfortune effected good, for the heart of the people was good, and the prince noble. To produce this good, however, the whole former political tendencies had to be changed, the people strengthened by greater freedom, and the general character elevated.

The king, with these views, appointed an "immediate commission" in Memel, which was to provide means for the moment, and prepare the changes for the future. It was divided into two sections, one for the war department, the other for the interior. This commission laid the foundation for the new order of things, and, with lasting peace, needed only a power-

ful leader to effect these changes against the most threatening foreign combinations, and against the most violent opposition at home.

Such a man was found in the minister, Freiherr von Stein. He had lived in retirement on his estates during the war, and was now summoned to Memel by the king in October, 1807, and placed at the head of affairs. He was only allowed to remain at the head for one year, but this short period sufficed to make his ministry memorable. He began to introduce his new measures while in the most difficult position, and while Scharnhorst, the minister-of-war, was raising a new army. Politics assumed a more decisive German tendency, and Stein introduced changes which may indeed be called a revolution by constitutional means. The decree of the 9th October, 1807, repealed the laws of vassalage and feudality; on the 19th November, 1808, a constitution was announced, and on the 16th December, an edict was published which re-organized the entire state. At the same time the cleverest and most appropriate men were chosen to fill the various offices. Only character and abilities were required, and the most liberal, independent minds were admitted, thus opening the door to a constant progress.

But political changes alone were not sufficient. The necessity for purifying the state from below was also felt, and it was acknowledged that to effect this it was necessary not only to teach but to educate; to free the spirit, and awaken the character and independence of the young, and thus create worthy citizens for the state, capable of coping with the future destinies of the nation.

Two things seemed necessary to achieve this. The introduction of the Pestalozzian system of elementary instruction, and the erection of a great, new university, in place of the university of Halle, given up at the peace.

The more determinedly reforms were planned on the field of popular instruction, the more it was felt

that a man was required for this post who was himself penetrated by the intellectual genius of the nation, and thus capable of leading and inspiring the intellectual forces of the country—in short, one who could give an impulse to this branch of government, as Stein and Scharnhorst did to the others. And such a man was found in Humboldt.

The selection of Humboldt for this post cannot be enough praised, for one more fitted to direct on the wide field of popular instruction could scarcely be imagined. It has been asked whether he was equally fitted for the post of minister of public worship, and a word on this subject may not be out of place here.

No one can know anything of Humboldt, nor have glanced at any of his writings, who doubts whether religion was in him or not. It is, however, true that his religious opinions were a little removed from positive Christianity; whether it be that he objected to the outward form of Christianity, or that he feared to lose his intellectual freedom and independent nature by entire submission to it. He, on this point, very much resembled the great literary men of that period, and although it cannot be said that he was bound by the fetters of the eighteenth century, he must in this respect be acknowledged its faithful pupil. Humboldt's characteristic motto was "All knowledge leads to God." But, in obedience to his own soul, he might have added, "All natural feeling also leads to Him." For although his being was so entirely intellectual, natural feeling was, withal, a marked feature of his character. None of the philosophical systems of the age was capable of entirely satisfying his requirements in this direction; and he was deterred from joining the subsequent developments of this science, as much by his just and natural mode of thought, as by the warmth of his heart, and the penetrating quality of his mind. He was not a mere theist, and not a pantheist. The belief in the existence of God, in an all-wise Providence, in the individual immortality of the soul, was firmly planted in

his heart, and was united in a peculiar manner, partly with the idea of fate of the ancients, and partly with such theosophic and philosophic views as many of the most thinking minds, from the oldest times, among Hindoos, Greeks, and Germans, have tried to fathom. His philosophy of history was also based on these views, and, indeed, the whole philosophical result of his reflections tended to this point. But he does not require all what he conceived in thought, faith, and imagination, to be philosophically proved, and, unlike the thinkers of his day, he takes refuge with his innermost feelings in the region of poetry, where the doubt of the moment finds equal expression with the boldest flight of thought.

He was indifferent to dogmas, but not hostile to them. He avoided them with that awe which fears to profane holy things; and where he could not escape it, he treats it as an established fact, to which all submit, shirking any further explanation.

Such a man could not be out of place as the president of the ministry for public worship, as his office merely requires him to supervise the department, and guard the interests of the State, letting the spiritual authorities under him superintend the details. His sphere, his positive business, is public instruction; here he has not merely to watch, but to lead, and in regard to Humboldt's great and peculiarly appropriate qualities for this post, the question as to his fitness for the religious part of his duty may be answered in the affirmative.

The manner in which he fulfilled his duties left no doubt on the subject. As it was his principle to give full scope to the spirit of freedom, he seems to have made it his especial duty in no way to oppose the independent activity of Nicolovius, his colleague in the religious department, but to meet his wishes and demands as far as was in his power, when they were not diametrically opposed to his own views of expediency or liberality. Nicolovius has also gratefully acknowledged the assistance he received from Hum-

boldt, the chief of his department, although he expressly endeavoured "to re-animate the people to religious faith, and thus, in his department also, to commence a new order of things."

It may be considered inconsistent that Humboldt, who had in former times determinedly opposed the interference of the state with the education of its subjects, should now with such zeal labour, not only to effect a reform in instruction, but that education as well as instruction be bestowed on the poorer classes. This is indeed a concession which the theoretician made to practical life. His theory of uncontrolled individual development could not be maintained in face of the requirements of reality of the German national life, and of such a time when it was of the utmost necessity to educate the people in a certain direction. But nevertheless his ruling principle, which he had only modified, not abandoned, exercised a beneficial influence. Firstly, he ever kept sight of the individual development as the grand aim, and the more he had to do with those already advanced, the more he left them at liberty to follow the bent of their inclinations. It is characteristic of this tendency, that at the very time when he was reforming the Prussian universities and founding a new splendid one, he published an injunction, on the 28th April, 1810, which unconditionally repealed the law forbidding Prussians to attend any foreign universities or high schools. And whenever it was possible, he acted in this sense, especially with regard to the men whom he had summoned to impart the sciences and higher branches of education. He endeavoured, not to lead them, but to allow them perfect freedom of action, so that he even, in the choice of new professors, submitted his judgment to that of Wolf and the scientific deputation, and only acted independently of them when they deserted him.

The department of public instruction had long needed such a reformer. Until the war it had been presided over by the Minister of Justice, von Masson,

a proud man, opposed to all reforms; and since the war, a perfect confusion and partial dissolution had ensued, and all were longing for assistance and for a thorough reform. Zelter writes to Goethe, on the 26th December, 1808: "We are expecting the Roman Humboldt here now; he has been appointed privy councillor and minister of worship, of instruction, and of the theatres. If he is still as he was before he went to Italy, I anticipate much from him. He can do much good at his post whichever way events may turn, for in this point, as in many others, we have long led a sinful life."

In April, 1809, Humboldt arrived in Königsberg, where the court and the officers of state still remained. Prussia was in a melancholy condition, for the pressure and importunity of Napoleon became more and more insufferable, even after the peace, and the pecuniary distress greater. The future existence of the state still seemed uncertain, and many doubted whether it might not be utterly destroyed in a week. But though affairs were thus in such a melancholy condition, Königsberg itself afforded a most consoling prospect. The best men in the state, full of pure zeal for the welfare of the fatherland, had here assembled, and in close communication with the royal family were preparing measures destined to save the country. Besides these men whom the times had brought together, Königsberg was, and had been, the residence of some of the most eminent philosophers of the day, whose presence had always exercised an elevating influence over the inhabitants of the town. Foremost among these was Kant, who had died a few years before the present period, and under whose tuition the other great men in the town had risen to eminence. Humboldt entered into more intimate acquaintance with Dr. William Motherby, an excellent man, the friend and pupil of Kant. He was a Scotchman by birth, but resided in Königsberg, where he formed a society in commemoration of the great philosopher. Humboldt, as an adherent of the Kantian

philosophy, soon became intimate with Motherby, and after his departure from Königsberg, remained in friendly correspondence with him. Professors Vater and Niebuhr came to Königsberg during Humboldt's stay, and it was here that he first met the great historian, Niebuhr, who writes home on the 28th of September, 1809: "I have only seen Humboldt, the chief of learning, once till now. His reception was extremely kind, and I anticipate much benefit from his society."

It was in Königsberg also where Humboldt entered into relations with the court. A man of such mind and such profound knowledge of the world, was a star even in the highest circles. He was honoured, not only as a great scholar, as an eminent statesman, but also as an unusually accomplished companion. The court was amused by his jokes, by his comic descriptions, and forgot the bitter troubles of the times whenever he indulged in his merry humour, and, comparing men to monkeys, forced them all to laughter. He became most intimate with the Princess Louisa, married to Prince Radziwil.

This was, on the whole, a time of harvest for Humboldt, and he had full opportunities for developing his practical talents. He found it easy not to abandon hope even on the brink of the precipice, and worked on with untiring zeal, convinced that an energetic and useful activity would always lead to favourable results. He sought to impart this feeling to others, and exclaimed to one of his despairing comrades, "The present is a great goddess, and is rarely coy to those who treat her with a certain cheerful courage."

While his official duties, and the social demands consequent thereon, occupied so much of his time and attention, he had nevertheless force of character sufficient to remain true to himself and his individual development. He always commenced his days with the study of Latin or Greek, and said at this period: "Without this, the parchments would spoil the man entirely."

Correspondence also occupied a great portion of his time. His family was in Italy, his brother in Paris. With Uhden, who had been his predecessor in the Roman embassy, he stood in official correspondence; he had, besides, an extensive official and private correspondence with many others, and especially with F. A. Wolf. His friendship for the latter induced him to place him in a prominent position in the educational department, to which Wolf's talents entitled him, but for which his aversion to move in circumscribed spheres, and his obstinate demands, soon made him unfit. Humboldt insisted on his great scientific worth to the ministers, and even to the monarch, and convinced them of the expediency of treating him cautiously and considerately, in order to keep his services for the state. He wrote to Wolf in June, 1809: "Think of your fame. Fame is a Sisypheus stone, which rolls back treacherously if one does not always advance it. Your calling is to produce great learned works; you are now so placed that you have sufficient time for them; your official duties are so arranged that you can easily fulfil them in your leisure moments. Commence some work, help us at your own convenience in our less important labours, and grant me now, as formerly, your affectionate confidence. But do not let it be said, that in fixing you in Berlin I make your talents useless for science." His efforts were, however, in vain. Wolf was not fitted for business activity, and his ambition was wounded by being placed in a subordinate situation. In March, 1810, when the section for sciences expected to commence their labours under Wolf's presidency, he suddenly resigned the office. He soon felt, especially after Humboldt had left his post in the government, how foolishly he had acted, and how kind his friend's intentions towards him had been. His respect for him increased more and more, and he lost no opportunity of showing it in the most solemn manner.

The first point to be achieved was a reform in popular education, or rather, the introduction of a

comprehensive system of national education. It was not sufficient that schools were opened, order and regularity introduced, and the position of instructors raised ; for a true education and to attain what was required, a thorough revolution in elementary instruction was imperatively needed.

This reform was found in the views and method of Pestalozzi, a native of Switzerland, and a man possessing a deep insight into the life and requirements of the people, into the means of rousing it, and of educating it according to its natural powers and abilities. His system included all the elements of popular education, and his method was calculated, at the same time, to awake the reasoning faculties of the young, to form their character, and to strengthen the body and mind. Pestalozzi was eagerly employed in disseminating his views by books, and by the erection of model institutions in Switzerland. But few had at that time any mind for such things, least of all the governments. Such misfortunes as that of Jena had to come to make the soil fertile for such great reforms.

As soon as the necessity for a fundamental reform of national education was acknowledged in Prussia, it was determined to introduce the Pestalozzian method. Nicolovius entered into personal communication with Pestalozzi, young men were sent to his institution in Ifferten, and it was determined to arrange a normal institution in Königsberg on these principles.

So far had matters advanced when Humboldt was called to the head of affairs, and gave his unconditional support to the system. C. A. Zeller, a pupil of Pestalozzi, was summoned to superintend the founding of a normal school in Königsberg, and to teach the system to others, and arrived in September, 1809. Zeller fulfilled his mission with admirable skill and talent, and received a permanent appointment in Prussia, and yet the reform still met with opposition. The orphan establishment of Königsberg was to be the proposed pattern institution, but Zeller found it in a deplorable condition. The authorities would not

give him sufficient opportunities for introducing his measures, until Zeller, disgusted, was on the point of returning whence he came. Then Humboldt represented to the highest authorities the injustice of their treatment in such strong terms, that all that Zeller required was immediately granted.

As the attacks on the new system still continued, the king at last determined to inspect the new institution himself, and to surprise Zeller with a visit some morning. The princess Louise Radziwil, however, sent him the intelligence that the king, the queen, and the whole ministry, would come to him the next morning. It was a decisive moment. The king remained from eight o'clock until one; he inspected the mode of life of the establishment, its system of tuition and education, its military, gymnastic, and technic studies, and was so gratified, that on the evening of the same day the fate of this reform was decided, and the king declared himself in its favour.

Humboldt took great personal interest in the forms of the elementary tuition, in the principle of letting children discover and afterwards teach everything themselves, and especially in the mode of teaching children to read, and giving them a knowledge of the language by letting them learn all the roots, terminations, and prefixes. He inquired how this division of the syllables had first suggested itself, and remarked that this system might be adopted in all languages, except the Chinese. It is evident that Humboldt immediately conceived the matter from its intellectual side, and in reference to universal and comparative philology.

It is a strange fact that the unmusical Humboldt frequently was present at the musical instruction which Zeller gave the children, and paid such great attention to it as if it especially interested him. He thought, perhaps, that he ought to try whether he could not learn what, according to a certain method, every child could learn.

Equal care was bestowed on the gymnasiums and

universities, and here Humboldt found the opportunity of showing his active universal mind in founding a real pattern university. His mind was filled by a high ideal, foreign to every low thought, and he was quite as averse to satisfying such demands of selfishness as those made by common statesmen, who consider high schools as mere training establishments for the public service, and use them as a means for forming the spirit of the nation according to their narrow-minded or arbitrary views. Humboldt, on the contrary, wished to free the mind from its fetters, and so little did he care to maintain the influence of the state over advanced studies, that, as we have already stated, he repealed the law forbidding students to visit foreign universities.

Two high schools had remained in Prussia after the peace—Königsberg and Frankfurt-on-the-Oder. The one in Königsberg was well reformed; an observatory was built, a number of new professorial chairs, such as the progress of science called for, were erected, eminent teachers, in the full vigour of manhood, were appointed, and the funds of the university considerably increased. Frankfurt was also not forgotten. The intention of removing this establishment to Breslau, and of uniting it with the theological institution there, was formed at this time, but not carried out until 1811. It was, however, not forgotten during Humboldt's period of office, as we see by a letter written by Professor David Schulz, who was appointed there. "Matters improve even with us, and something effective is being done for the academy. Herren von Humboldt and Süvern were here in person a short time ago. Several new professors have been appointed."

All this was effected during the greatest distress, when the government did not know how the necessary expenses were to be provided. And yet there was no parsimony in a branch which generally is the first to suffer retrenchment.

The most important work, however, is the foundation of the university of Berlin. The king gave his

assent to the project by an order in council, signed 4th September, 1807, which decreed that a universal institution for instruction should be erected in Berlin, in appropriate connexion with the academy of sciences. The ostensible motive for the new institution was the loss of the university of Halle, which had hitherto been the most important establishment of the kind in the monarchy. But the real reason was a deeper one. It was felt that the state, the nation, and the government, needed an intellectual impulsion, such as only a great institution of this kind, in the immediate vicinity of the highest authorities, could give. It was felt that this, which common minds would consider an unwarrantable luxury in such a time of distress, might prove the means of saving the state, and the government, therefore, did not shrink from the sacrifices which the execution of the plan demanded.

The matter had advanced so far when Humboldt was called to the post, and on him devolved the onerous duty of carrying out the plan. For scarcely had the first step been taken when the mode in which the plan should be executed was warmly discussed, and the place chosen for its erection met with great opposition. The prime minister, Freiherr von Stein, was even on the side of the opponents. To his idea the calmness of academic life was quite inconsonant with the bustle and diversions of a great capital, and with his usual impetuosity he declared the plan to be absurd. He feared especially the demoralization of the young students. F. A. Wolf, however, succeeded in representing to him that his fears were exaggerated, and in persuading the minister of the feasibility of the plan, who thereupon became as violent a partizan as he had been an opponent. Again the insufficient funds were advanced as an obstacle, but this objection was met, and justly, with the reply, that with small funds more could be achieved in the capital than anywhere else, as so many indispensable institutions and collections were already in existence there. A third objection was of more importance

and was even shared by William von Humboldt when he first heard of the plan. He could not deny the restraint and prosaic tone which the vicinity of the government and of the civic relations might create ; he feared to see the liberty of university life circumscribed, and did not think it advisable that the impetuous, ardent youths should be constrained by the formality of official life ; finally, he objected to the pressure which the immediate neighbourhood of the government might exercise over the noble freedom of the teacher and of learning.

Important grounds must have existed to conquer the aversion Humboldt felt for the shadow of undue control which might eventually be brought to bear upon the young university. One reason unquestionably was the hope that the government might be benefited by the contact with intelligence and the freshness of academic life, and that the communication between the chiefs of science and the higher members of the administration might have an elevating influence on the latter.

The mode of execution was the next consideration, and Humboldt invited the most eminent men of the day, Wolf, Fichte, Schleiermacher, and others, to assist him with their advice. The plans of Wolf seem to have been the most practical, those of Fichte and Schleiermacher were profound and learned, but more admirable in theory than practicable. Fichte also laid too much weight on the form where the spirit was required, and men with mind and the power to impart it.

Humboldt's plan was to assemble a galaxy of talent and science on one spot ; he wished all these powers to operate quite uncontrolledly, and expected more from this measure than from all exterior rules.

He does not seem to have been of the mind to change more than was urgently necessary in such well-established institutions as the German high schools. Here no thorough reform was needed, as in the elementary schools and in the gymnasiums. All that was required was an abundance of new strength, and

means to treat those summoned with a spirit of liberality. In a word, to do for this new institution in an appropriate manner, and on a larger scale, what Münchhausen had once done for Göttingen, and the Government of Weimar for Jena, and then success was certain.

As soon as Humboldt had reconciled himself to the idea of erecting the new university in Berlin,—and this seems to have been before his accession to office,—he was heart and soul in the cause, and on the 25th March, 1809, already his associate, Süvern, wrote from Königsberg to Professor Schütz, in Halle: “Herr von Humboldt is very much occupied with plans for the new Berlin university; it is now his favourite theme, and although nothing has hitherto been decided, there is a great probability, if the state only remains at peace, that the new institution will be founded.

Persuaded by Humboldt's representations, the king, by an order in council of the 16th August, 1809, gave his definite consent to the proposed undertaking. The new academy was to have the privilege of granting academic dignities; the academies of art and science, as well as all the scientific institutions and collections of the capital, were, under the immediate direction of the department of public instruction, to be combined with this new high school. An annual sum of 150,000 thalers (about 22,500*l.*) was granted for these institutions, and of this sum 60,000 thalers (9000*l.*) were to be devoted to the university. The king presented to them for a university house the splendid palace of Prince Henry, situated in a central position in the town. This liberality in granting the necessary funds was beyond all anticipation. It was the highest example of a real acknowledgment of the importance of science and knowledge which a state has ever yet given, for it was given during a most disastrous time, and during great financial distress, and was intended as a means for salvation and renovation.

The king had expressed his wish that the university might be opened in the autumn of 1810, and the exertions to complete all the arrangements were now, therefore, redoubled.

The court and the administration returned from Königsberg to Berlin in December, 1809. Humboldt was expected on his journey to visit Frankfurt-on-the-Oder on the 18th, but it is doubtful whether he did so; the king and queen made their entry into Berlin on the 23rd.

Before leaving Königsberg, Humboldt had requested leave of absence to repair to Thuringia, and arrange family matters. His father-in-law, Herr von Dächert, had died in the course of the year. Frau von Humboldt was the sole heiress, as a brother she had, had died in 1806. The considerable inheritance which fell to her share consisted principally of the estates of Burgömer and Auleben, on which she had passed a great part of her youth, and the first years of her married life. The eldest son of this marriage received the royal permission to add the arms of the now extinct family name to his own.

On this journey Humboldt visited Goethe, in Weimar, and professor Reil, in Halle. The latter was a celebrated naturalist and physician, as well as a most enlightened and liberal-minded man, and was almost indispensable to such an undertaking as the new university. Humboldt, therefore, offered him an appointment in it, which he accepted, and soon afterwards removed from the Westphalian university to Berlin.

On the 26th January, 1810, Humboldt returned to Berlin. His family still remained in Italy. Soon after his departure from Rome, he was gladdened by the news of the birth of a son, who received the name of Hermann. He was the second of his sons who survived, and the youngest of his children. Frau von Humboldt lived alternately in Rome and Naples, and remained in constant intercourse with the artists who frequented the former city, even when, after the arrival of Cornelius and Overbeck, the romantic catholic tendencies prevailed. She wrote to a friend at this time: "I like them all, whether they are new or old catholics, if they are only good artists and good men. I must indeed count some catholic converts among

these good artists, but they became catholics in the spirit of love, and as artists, these catholics are among the best." She was expected in Berlin in the spring of 1810, but probably the change which then took place in her husband's position, delayed her return to Germany.

Immediately after Humboldt's return to Berlin, he made serious preparations for the arrangements of the new university, and Arnim the poet writes to Königsberg: "Humboldt has at last returned from his journey, and is making serious beginnings for the university, but unfortunately the ministry of finance is quite at variance with that of the interior."

In spite of these difficulties, Humboldt devoted his entire activity to this subject. The university was to be opened on the 1st October, and a number of important branches were yet unfilled; the various elements had still to be united to one whole; the collections and branch institutions had to be furnished with a sufficiency of means. When Humboldt, after a few months, quitted his post, the preparations were so far completed that nothing stood in the way of the opening at the appointed time.

All the eminent men belonging to Prussia were first elected for the new university; but if these did not suffice, professors were invited from other districts, and the universities which had been lost in the war contributed the best and most important names to the new establishment. Fichte, from Erlangen, was a host in himself. Halle sent several men, and formed, in more senses than one, the basis of the new university. All the important academic talent of Prussia was associated there. The archæological studies in their most extended views had taken root there, under Wolf's tuition. Beside Wolf stood Schleiermacher, the advocate of that national tendency which subsequently grew to such strength. These men, with Reil, a determined patriot, and Schmalz, at that time a man with untarnished reputation, introduced the healthy spirit which reigned in

Halle into the new creation. Another very important name was added to these: Niebuhr, who had been of great influence for some years in the financial department of the state, retired in disgust, and became a professor at the university.

With all these, and with the means used to induce the most eminent men in all branches of knowledge to repair to Berlin, it became possible to open the university with men of great, of the first eminence in all faculties. Fichte taught philosophy; Schleiermacher, De Wette, and Marheinecke, theology; jurisprudence was taught by Savigny and Schmalz; the medical faculty included Friedländer, Kohlrausch, Hufeland, and Reil. The department of natural sciences, of physics, and chemistry, was filled by Klaproth, Hermstädt, Illiger, and Erman; that of mathematics by Tralles. The historians were Niebuhr and Rühls; the archæologists, F. A. Wolf, Spalding, Heindorf, Buttmann, and Böckh, and the comparative philologist, Bernhardt. Hirt lectured on plastic art. The study of old German was introduced as an important addition, by Von der Hagen's lectures on the Nibelungen Lied. These and other names were contained in the first lists, published in September, 1810, and some were still absent, though engaged for the university, such as Wildenow, the celebrated botanist, and J. Bekker, the critical grammarian.

This commencement has always been admired; but of late years a reproach has been cast on it, which deserves mention here, as it was in fact directed against Humboldt, and by a man who, on other occasions, speaks only with enthusiasm of the university. This man is Steffens, who complains that the professors of the new philosophies were excluded. He says: "The most distinguished scholars were summoned, and all willingly obeyed the call. Only in the realms of speculation confusion reigned. At first it was intended to introduce a philosophical chaos into it, which seems a great contrast to the subsequently-introduced severe school. The importance

of speculation in German education was felt, but not acknowledged, and especially natural philosophy was scurvily treated. The most that was permitted was the introduction of a few Kantish doctrines. William von Humboldt thought that none of the philosophic systems of that period could claim any consideration. He thought that young clever men might emulate with each other as private lecturers, and that the prize could then be given to the victor. A professor of philosophy certainly was required, but then Fichte was there, and Schleiermacher, though a theologian, was a profound philosopher."

Berlin has certainly only lately become the chief seat of the new philosophy; it is perhaps also correct that Humboldt was not sufficiently just towards these studies, as he considered them in general to be retrogressive in their effects. But it may be questioned whether Schelling would not have been gladly welcomed, if he could have been induced to join the university, or if the contrast between him and Fichte had not been too great. Humboldt has at least highly praised Schelling's merits in improving the philosophic diction of the Germans, and he probably agreed with Schelling in many points of his philosophy, although he would have wished to have had it explained in a more natural manner, and with more critical ability. But if Steffens' reproach only means that it was very wrong not to give him an appointment at the university, it seems as if he were making himself the judge in his own cause. The majority of the thinking heads of Germany will certainly not blame Humboldt for being somewhat suspicious of the philosophy of a man in whom a profound contemplation of nature was indissolubly allied to a degree of mysticism highly dangerous to liberality of thought. Humboldt always remained consistent in this aversion, and not only opposed all Schleiermacher's influence in endeavouring to procure Steffens' appointment, but frequently expressed his regret at the intellectual errors of this otherwise clever thinker.

But if even Humboldt had been too suspicious against the modern school of speculation, it cannot be denied that his rule was, on the other hand, free from a fault to which the best directors of public instruction have always been addicted—namely, in unduly or exclusively favouring one philosophic system.

The endowment of the university was complete, not only with regard to its teachers: extensive collections had existed for some time in the capital, which were now given to the high school, or at least united with it. There was a considerable library, a botanic garden, a collection of anatomical preparations, and a quantity of other scientific collections, which were now increased and completed, and formed into a magnificent museum for natural history.

Thus everything necessary was arranged punctually to obey the royal mandate, but Humboldt resigned his office before the university was opened. The principal part of the work was, however, done, so that the rest might be completed by inferior hands. It is a characteristic feature in Humboldt's life, that he was not even present at the opening of this his creation. On the 29th of April, 1810, he expressed a wish to return to his diplomatic career, and in the middle of June his wish was fulfilled by his appointment to a post, in which such a man was urgently needed.

The reasons which induced Humboldt to resign such a congenial sphere of action are involved in mystery. It is certain that the ministry was in a very feeble position, and anticipated its dissolution daily. A certain vacillation pervaded all its measures, because the financial department was not based on a firm foundation. An arm to direct the whole firmly was much missed, and reports were repeatedly circulated that Dohna and the whole ministry had resigned. At last the king determined to summon Hardenberg to the head of affairs; Napoleon permitted it, and on the 6th of June, 1810, he entered upon his post. The lord chancellor Begme, the minister of finance Altenstein, and Sharnhorst, immediately resigned, the latter

only ostensibly, as he continued to work in the most complete unanimity with the chancellor. Count Dohna continued in his functions until November of this year. With Hardenberg's accession to office, unanimity and firmness were introduced into business. The financial difficulties were obviated, so that the reforms at home could be effected with more security, and the state became more dignified in its foreign relations.

This was the crisis which followed immediately after Humboldt's request to return to his diplomatic career, and in it must be sought his reasons for taking the step. The critical situation of the ministry could not interfere with his labours, and its fall would have cleared away many of the difficulties which beset his path. But those differences had commenced before the fall of the ministry had been determined, and it may be that they had been caused by the interference of the minister of finance in Humboldt's department.

However this may be, the dissolution of the cabinet did not change his resolution. Scarcely had the new prime minister, Hardenberg, taken the reins of government, than Humboldt's wish was granted, and he was, on the 14th July, appointed ambassador extraordinary and plenipotentiary at the Austrian court, and the title of a privy minister of state was bestowed on him. Besides the importance of this post under the circumstances of those times, there could not, as the Roman embassy remained vacant, be a more agreeable post than this.

Though Humboldt must have regretted leaving his situation, and even Berlin, in such an intellectually excited period, the thought might have consoled him, that he would now have more opportunity for cultivating his scientific studies, without neglecting the requirements of his fatherland, which had been impossible during the period he filled the office of minister of instruction.

Nicolovius was appointed provisionally to superintend the direction of that department. The news of

Humboldt's departure excited the fear that these affairs would be quite neglected, and that the opening of the university would be delayed. But they were groundless. The impulse had been given, and the plans for the university so far prepared, that it was easy for Nicolovius, in conjunction with the still acting Count Dohna, to complete the measures. The state chancellor offered the post to Alexander von Humboldt, then residing in Paris, but he preferred to devote himself to his scientific labours, and declined the proposal. In November, 1810, councillor Schuckman succeeded to the post, and Nicolovius was appointed director in both departments.

The virtues which Humboldt had shown as a statesman, his advanced views, his incorruptible love of truth, and his energetic activity, were amply appreciated by the court; the best acknowledgment was the Vienna appointment. He, however, received several other tokens of royal esteem. When the 2nd and 3rd classes of the order of the Red Eagle were founded, in January, 1810, the third being first distributed, Humboldt was one of the few statesmen decorated with it.

His scientific greatness was also more and more acknowledged. In the beginning of the year 1809, he was elected foreign member of the Danish association for science, and in the summer of 1810, he was appointed member of the philosophical class of the royal academy of sciences in Berlin.

CHAPTER VIII.

HUMBOLDT left Berlin in the beginning of September, and on the way spent two days at Tögulitz, with Gentz, who occupied an important position in the Austrian cabinet. He arrived in Vienna in the middle of October, and had an audience of the emperor, in which he presented his credentials, on the 3rd of November.

Metternich had been placed at the head of the ministry for foreign affairs after the last peace. He there developed that snakelike cunning which so soon helped to effect Napoleon's ruin, and which, at least as regards this western enemy, has been of such advantage to Austria. These were the first years of this celebrated statesman's activity, which were evidently the most important in his life, and in which he showed talents which even his bitterest enemies cannot deny. Metternich was clever enough to esteem a William von Humboldt, and although their views and opinions in general were diametrically opposed, they were outweighed by the immediate objects of the day. If to this is added the charm of finding a worthy opponent, the importance they had for each other and their present intentions, it can be easily understood, that personally a very good understanding reigned between them. An evidence of this is given in a letter written by Gentz at this period, in which he says, that in the evening he is never disengaged, because his chief, Metternich, is a great nightbird, and does not dismiss those who are with him in the evening until one or two o'clock ; that he had been obliged to roam about

the evening before until half-past one, on the badly paved streets of Prague, with Metternich and Humboldt.

But when the great object for which so many different persons had met here had been achieved, the difference between Metternich and Humboldt became more apparent. It may, probably, have been prudence on the part of the latter not to make himself suspected before. At the congress of Vienna, he was, probably, often in their way, and it is certain that Metternich and Gentz did their utmost to obtain the subsequent dismissal of William von Humboldt.

Gentz had not seen Humboldt for ten years, and wrote to a friend at this period that all his awe for Humboldt's superiority, all intimidation, had vanished, that he was nothing now but an agreeable companion. He does not seem to have understood why Humboldt did not let him feel his superiority, when it would have so much injured the purpose he came to effect. In 1814 this superiority was again very evident, and although Humboldt cultivated his acquaintance, nor deserted the friend when he had grown old, still an intimate friendship between them was impossible after 1813.

In Vienna Humboldt was again united to his wife and children. Madame von Humboldt left Rome in the autumn of 1810. The residence on this side of the Alps did not seem to please her so much, nor could her health bear the climate of Vienna. If we add to this her longing for the beloved Rome, we need not wonder that she never felt at home in Vienna.

Humboldt's house was in Vienna, as it had been in Rome, thrown open with the most liberal hospitality, and again the highest in the social and intellectual world crowded Madame von Humboldt's saloons. Among the foreign diplomatists, the Danish ambassador, Christian, Count Bernstorff, an amiable talented man, was a welcome guest, and Humboldt remained equally his friend when a post was assigned to him which would have been with more justice bestowed

on Humboldt. We have already mentioned the chief persons of the Austrian cabinet, Metternich and Gentz. Franz Schlegel was now, also, in the Austrian service, and lived in Vienna with his talented wife, occupied in literary activity. With Arnsteins and Caroline Pichler the Humboldts also associated. But the chief of all the visitors was Alexander von Humboldt. Scarcely had he published the first portion of his descriptions, when he was already planning a second great undertaking to central Asia and Thibet, and repaired to Vienna in November, 1811, to take leave of his family. The plan was, however, not then executed, and Alexander returned to Paris, where he was busy for several years with the publication of his works. Another honoured guest was the Prussian Rittmeister, von Hedemann, a clever officer and adjutant of the Prince William of Prussia; he subsequently became Humboldt's son-in-law.

In Vienna Humboldt also found some leisure for his favourite pursuits, and returned with redoubled ardour to his philological studies, which he extended more and more. He determined now to publish his Basque studies. He was induced to do this by Professor Vater, in Königsberg, who had requested him to furnish an essay on the Basque languages as an appendix to his "Mithridates." Humboldt acceded to this proposal, and at the same time determined to treat the subject in a more extended form.

But the events of the day soon tore Humboldt from works of this kind, and with restless activity he obeyed all the claims which his important official position made upon him. At the time when the storm lowered which spent itself in the Russian campaign, Prussia's fate was at a crisis. It concluded the alliance with Napoleon with more repugnance than Austria. But although it publicly obeyed the will of the mighty one, it secretly prepared for the approaching definite struggle, especially by an alliance with Austria. It may be assumed that the foundation of the great European alliance, and of the union of the

two great German powers, was laid towards the end of 1811, or the beginning of 1812. It is said that the first and most important steps between the two nations were made by the monarchs themselves, and that only through the hands of their most confidential advisers. But the work must have been more easily effected when a man like Humboldt had laid the preliminaries. The king came from Berlin to Prague, and proceeded to the baths of Töplitz in June, 1812. The presence of his monarch in the capital of Bohemia brought Humboldt thither. Immediately afterwards he obtained leave of absence, and visited his Thuringian possessions, probably only as a feint. He arrived in Berlin in August, and returned from thence, no doubt furnished with the most important instructions, to his post at Vienna.

More quickly than had been anticipated, and under more fortunate auspices, came the great day of liberation. The catastrophe in Russia, the departure of the king from Berlin to Breslau, the junction of the Prussians and Russians,—these news succeeded each other like lightning flashes. The advocates of resistance now stood forward supreme, a well-regulated complete force, whom the government had to emulate in energy and activity, if they would not lose their authority. The ambassador at the court of Vienna was accurately informed of all that passed at home. Theodor Körner, who was in Vienna, wrote to a friend in Dresden, in February, 1813: "You may imagine that my soles burn since the address of the King of Prussia to the volunteers has reached me. Through the Prussian ambassador here, Herr von Humboldt, I am accurately informed of the popular feeling in Prussia, and of all that is being done in Breslau." In March the Prussian landwehr was summoned, the king issued an address to his people, and the formal declaration of war was made; the struggle commenced on the plains of Saxony, even before Austria had declared itself, or thrown its influence in the scale.

It was determined in Vienna that now a balance of power and a secure condition must be attained by treaties or by force. But Austria, always slow, needed time to prepare itself. This delay was painful, and Napoleon's genius showed plainly at the first blow how fatal a singlehanded struggle would be. It was now necessary, therefore, to soothe all doubts in Vienna, to give political and military securities, and overcome all hesitation and delays. What a field for a Humboldt—for his intellect and his activity! In opinions they were agreed, but the leader of the Austrian cabinet would not be hurried; he was waiting for the time when, supported by a well-equipped army, he could be sure to give a decisive blow. In the meantime he threw his net so skilfully round his opponent, that he was caught in it and fell.

The dallying politics of Austria in 1813 have frequently, and not quite unjustly, been censured. But they were the chief means of confusing and ruining Napoleon. He treated verbally and by correspondence with Metternich, who acted as mediator between the antagonist parties, and could not be spared. It was only because he hoped to secure Austria's alliance that Napoleon made a truce with Prussia and Russia, accepted Austria's mediation and the peace congress of Prague, and left all his enemies time to unite and to strengthen their forces. Then the union with Austria was definitively cemented, and Prussia and Russia combined with the money-giving England. Humboldt proceeded, in the beginning of the month, to the head-quarters of the allied powers, and thence to Ratiborwitz, a palace of the Duchess of Sagan, near Gitschin, which, since the 4th of June, had been the seat of the most important conferences. Gentz wrote to a friend in Prague, from Ratiborwitz, on the 23rd of June: "You know that now by a chance unequalled in history, four of the first sovereigns in Europe, (with the exception of Napoleon!) with their cabinets, ministers, courts, and six to eight hundred thousand men, are concentrated on a narrow strip of

land, about twenty (German) miles long and ten miles broad. In Gitschin, six hours' distance from here, are the emperor and count Metternich; in Opotschna, three hours' distance, the emperor Alexander and his two sisters stayed about a week. I was there two days, and saw the king of Prussia, who dined with the emperor. Humboldt was with me. To-day the emperor has dined here with us in Ratiborzitz with the duchess, and now returns to Reichenbach. I have seen him often. Ratiborzitz is the central point of meeting; here, all last week, Metternich, Stadion, and Hardenberg were, together and separately. Great things have been determined. Humboldt came with Hardenberg, has fixed himself here, and will remain till the further plans are arranged."

The point where these plans were determined was Prague, where the peace congress was appointed to meet on the 5th July, while the allied powers were debating the plan of the campaign.

The confidence which was reposed in Humboldt, when he was sent by Prussia as plenipotentiary to the peace congress in Prague, and the share he subsequently took in all the debates, proves how well he understood to treat the cunning policy of the Viennese cabinet, and to urge it on without offending it. Russia sent Herr von Austeth, and Napoleon, the Duke de Vicenza and the Count de Narbonne, to treat in Prague; and Count Metternich represented the mediating power. The meeting in Prague was deferred till the 12th July, on which day Humboldt arrived there. Herr von Austeth and the Count de Narbonne were there also, but the latter would not act alone, and the Duke de Vicenza did not arrive till the 28th. As the French envoys immediately began to disagree about the form even of the negotiations, the allied powers were no doubt right in distrusting the French emperor's intentions with regard to the peace. The mediating minister proposed the formalities of the congress of Teschen, where the discussions were only carried on by writing, and through the

mediating power. The envoys of the allies consented to this, doubtless because they wished to have everything in a written form ; Humboldt, because it agreed with his instructions. But the French plenipotentiaries demanded verbal and written communications, and complained bitterly that they had not even seen their opposed ambassadors. Hereupon a number of notes were exchanged with the Austrian minister on both sides ; the truce expired before the question of these formalities had been settled. On the 10th August, Humboldt and Austeth declared that their authority as plenipotentiaries had expired.

On the 11th August, Humboldt left Prague. He went to Vienna to arrange his affairs and take leave of his family, from whom the expected events would separate him for some time. He was now expected in the head-quarters of the allied powers, where he was to take part in the direction of affairs, in conjunction with Baron Hardenberg.

This separation even had its pleasures, for all the members of the family emulated with each other in doing their utmost for the fatherland. Humboldt's eldest son, Theodor, a youth of seventeen, had interrupted his studies to fight under Prussia's flag. He entered the horse guards as a volunteer, was at Dresden and Culm, and fought in the storming of Montmartra. Madame von Humboldt also showed her interest for the great events of the day as far as she was able. She remained in Vienna till the spring of 1814. But as soon as the peace was concluded and her failing health permitted it, she removed with her children to Switzerland.

Humboldt was in Prague, on his way to head-quarters, on the 1st September, 1813. He found the monarchs and their ministers in Töplitz engaged in concluding treaties with their new allies. Day after day the arms of the allied armies were more successful. The battles of Kotzbach, of Culm, of Dennewitz, humbled the power of the common enemy ; then from three sides the armies approached the town

in which the decisive battle was to be fought. Napoleon, however, retreated across the Rhine, and Germany was freed from her subjection.

After the battle of Leipzig, Humboldt paid a visit to Goethe, in Weimar, where Metternich and Hardenberg had also repaired. Frankfort on the Maine remained the head-quarters until the end of the year. Humboldt's office was, during this time, to conclude treaties with the smaller German states, such as Bavaria, and partly also with Wurtemberg. While the war was still continuing, another peace congress was to be held at Chatillon on the Seine, and Humboldt was deputed to act in it again as Prussian representative.

The French plenipotentiary at the peace congress was the Duke de Vicenza, and on the side of the allied, although the foreign ministers Metternich, Nesselrode, and Hardenberg were at head-quarters, and Castlereagh was expected, it was determined that not they, but the diplomatists nearest them in position and influence, should fill this post. But these diplomatists received such decided and consistent instructions, that they had nothing to do but conscientiously to act upon them.

Austria still wished to spare Napoleon, but hinted plainly that it would soon no longer be able to do so. On the 9th February, the ambassadors of the allied powers arrived in Chatillon. Austria was represented by Count Stadion, Russia by Count Rasumoffsky, England by Lord Aberdeen, Earl Cathcart, and Lieutenant-General Stewart, Prussia by Humboldt, who watched the interests of his country with his customary industry and zeal. The communications which passed between him and Hardenberg, as minister, were only sent through the safest couriers, officers or mounted guards, and were always written by his own hand.

On the 4th February, the ambassadors paid each other the customary visits, and on the 5th the conferences commenced. The plenipotentiaries of the

allied powers declared at once that they only acted in concert in the name of Europe, and in meetings which were to be reported. On the 6th, already the French ambassador complained that it was evident the four deputies, counting the three English as one, had received the same instructions, and that they did not say a word without having first all agreed to it; and this was indeed the case. After prolonged debates, in which the terms demanded by the French varied with the fortune of the war, the congress was broken up on the 15th March, without having come to any result.

But Napoleon's day had come. The courage of the Silesian army and the union of the various forces, opened the way to Paris. Napoleon was defeated, the Bourbons returned, and on the 31st March the Emperor Alexander and Frederic William entered Paris. Their ministers and diplomatists followed them on the 7th and 8th April.

Paris was not new to Humboldt; he found old friends among Frenchmen and Germans. There was the Count Schlabrendorf, Oelsner, A. W. Schlegel, Madame de Staël, B. Constant, and many others; but above all, his beloved brother, whose society must have afforded him much delight, although the king claimed him frequently as a guide. He also made many new friends here, and became acquainted with most of the political greatneses of the day, such as Count Münster, Lord Castlereagh, and from this time dates his friendship with the two celebrated Prussian generals, Gneisenau and Blücher.

He was soon, however, wanted for business, and first to take part in the conferences for the first Paris peace. The preliminaries only were settled here, and a congress appointed to take place in Vienna, when the whole would be definitively arranged. When the Paris conferences were over, the Prince Regent of England invited the monarchs and their courts to visit England. Humboldt accompanied his king, and was received with distinction by the Regent. They re-

mained in England three weeks, and then Humboldt accompanied his king to Switzerland, where he joined his wife and family. Madame von Humboldt determined now to proceed to Berlin with her family, to escape the commotion of the congress; Humboldt, however, proceeded to Vienna, where the congress was to assemble on the 1st October.

The history of this congress has been so meagrely given in a few contemporary works, and the official reports are so confined to generalities, that it is difficult to describe Humboldt's activity there, although, from his position as ambassador to the Austrian court, and as the most talented of the three Prussian representatives, Hardenberg and Von Stein being the two others, it must have been considerable. He seems to have agreed very well with Hardenberg here, in the difficult position he was placed in as regarded the Prussian state chancellor, although it may be supposed that some differences must have arisen between them. Else, we should have to suspect Hardenberg of mere jealousy and envy of Humboldt's talents, in subsequently effecting his rival's dismissal.

Humboldt's knowledge, his reasoning power, and his skill, were everywhere admired, and all documents existing from that time give abundant proof of the respect in which he was held. The "*Rheinische Merkur*," in an article on the congress, 12th January, 1815, says: "The minister Humboldt is clever, and knows much. Many miss the heartiness in his manner which Germans like to see in their countrymen, but he is, nevertheless, a great light. The last plans for a German constitution are said to be by him, and he supports them warmly; and, of all there, he is best able to meet the Frenchmen in their underhand dealings." Another article says: "The state chancellor, Hardenberg, is, as always, confiding, trusting, unsuspecting in his politics, and taking everything in a favourable light; but Humboldt is cold and clear as a

December sun." From all we can gather, it is evident that Talleyrand, Metternich, and Humboldt were the most prominent characters at the congress, and that Prussia found in him an extraordinary representative. And yet it may be doubted whether Humboldt found at this congress a sphere consonant with his wishes, on which his own being could have shown itself. The time was not made for it. A conservative age commenced in good and in evil, and the appropriate measures could rarely be carried. If we consider the opposition he met with in all suggestions for a fundamental reform, we must be surprised at what he has, nevertheless, been able to achieve for Germany.

Humboldt was not only one of the most eminent, but, fortunately, one of the most industrious members of the congress. He was a member of nearly all the committees. What Humboldt worked during the congress, and how carefully, thoroughly, and prudently, with what conscientiousness and perseverance, is almost incredible; he expected the same from his assistants and subordinates, among whom the most prominent was the Count de Flemming, the nephew of Hardenberg.

During the most laborious days of the congress, Humboldt was yet fresh and willing for scientific labours and for social intercourse; he corrected his able translation of Greek choruses, practised the Pestalozzian system on himself, made a few German verses every day, wrote many family letters, and besides all this, he kept a diary, in which he reported not only the great events of public life, but also the incidents of society, the anecdotes and adventures of the day. Unfortunately, as he himself says, he afterwards had the idea to burn the majority of his papers, and these among the number.

The congress commenced with difficulties and delays, and the conferences of the eight powers were deferred to the 1st November, and continued until the return of Napoleon from Elba. The boundaries of the different States of Germany, their privileges,

and authority, were determined, and although Humboldt laboured at all these matters with inexhaustible industry, his liberal policy was not always supported or successful.

Overwhelmed as he was with pressing affairs, he nevertheless found time to watch the excited life of the day, and accept many of the numerous invitations. He was, indeed, never seen on the Bastei, the regular promenade of the inhabitants of Vienna, where the whole fashionable world showed itself, but he was present at all the festivities which at that period rapidly succeeded each other; he was found in the saloons where single members of the great whole met, as in the saloons of the Countess Taxis, the chief point of meeting for eminent Prussians, the Frau von Arnstein, by birth a Prussian, &c. We find Humboldt at a ball in the imperial palace conversing with Dalberg and Wessenberg on the Polish-Saxon question; we find him at a pic-nic in the Augarten, which the celebrated Sidney Smith had planned, in lively conversation with the Count Rechberg. Count Rechberg was speaking with such literary enthusiasm of a work on Russia, that he forgot to attend to his master, the King of Bavaria, who was calling for his assistance in a dilemma. Gentz united the most distinguished company in his house. One met there the Duke of Weimar, Talleyrand, the Count and Countess Bernstorff, the beautiful Countess von Fuchs, Dr. Bollmann, celebrated for his attempt to liberate Lafayette from Olmütz, Rahel with her husband, and, of course, also Humboldt. It is told of a dinner at the Prince Chancellor's, at which Humboldt, Prince Radziwil, Stagemann, Grolmann, and Schöler, Von Bülow, Count Flemming, Bartholdy, Varnhagen, Rahel, &c., were present, that the gymnasiast, Jahn, also made his appearance there, coarse and dirty, and imparted his doctrines and rudenesses. Humboldt's anxiety to be introduced to Jahn induced the latter to begin his game with him also, but here he did not succeed; Humboldt's superior mind easily kept down the infe-

rior one, and Jahn remained standing at last, as if he did not know whether he had been fooled or not.

Of former acquaintances, Humboldt met Cardinal Gonsalvi, who appeared as the pope's representative. Major von Hedemann also visited his future father-in-law during this period. The bookseller Cotta came, deputed by his colleagues ; besides many other diplomatic and non-diplomatic persons.

Several adventures and anecdotes of Humboldt have also been handed down from this period, of which we only give the two most characteristic ones. The first was a serious one, namely, a duel, which had nearly stained the calm arena of the congress with blood, and which caused the more astonishment because the combatants were not two young hot-heads, but two sober, sedate men, both ministers of the same great power—Humboldt and the Prussian minister-of-war, Herr von Bogen. These men quarrelled, in consequence of an almost childish breach of etiquette, in which, however, Humboldt's wanton humour deserves some little censure. The minister had been invited to a conference of the five powers, to give some explanations regarding the approaching campaign. The matter had been settled, and other things were to be discussed, for which the presence of the minister seemed inappropriate. Instead of simply stating this to him, Humboldt led him out of the room under a reason which excited the military man's anger. Bogen demanded satisfaction, arms in hand, and Humboldt, whose courage never failed him, and whose presence of mind never deserted him, accepted the challenge with the most cheerful air in the world. The duel took place. No witnesses were present except Hardenberg, and the physician, Dr. Koreff. The combatants fought seriously and conscientiously, but it seemed as if both were invulnerable ; and after two pistol shots on each side, they were reconciled. Many were amused at the very susceptible honour of the minister, Von Bogen, but all admired the calmness and chivalry, and the good humour of his adver-

sary, which was as constant in the field as at the conference.

The other adventure was less serious. The painter Isabey came to Vienna to commemorate the remarkable assembly by a painting. On the one half of the picture the crowned heads were assembled; on the other the diplomatic chiefs were sitting round the table at which the fate of Europe was decided. Each figure was a portrait; the artist chose the moment when Metternich introduces the Duke of Wellington. But one circumstance nearly frustrated the artist's intention. All the European representatives of importance were to figure on this picture, and among them Humboldt could not be wanting. But now Isabey was informed that here he would meet with opposition, as it was well-known how averse this statesman was to let himself be painted. He had refused it to the Princess Louise Radziwil, sister of Prince Ferdinand of Prussia. Isabey therefore went to Humboldt with very little hope. His embarrassment, real or feigned, increased the humour, now become proverbial, of the Prussian statesman, who, fixing his prominent large blue eyes upon him, replied thus: "Look at me, and confess that nature has endowed me with a too ugly face than that you could disapprove of my resolution never to spend a *sou* for my portrait. Say yourself, would not nature laugh at my expense, if she perceived such egregious folly in me? No; she shall see that I can appreciate the ill-favour she has bestowed upon me." The painter, surprised at this declaration, now gazed in astonishment at the irregular features of the minister; he, however, soon collected himself, and replied that it was not his intention to take any reward from his excellency for the agreeable task which he wished to undertake; he only came to ask from him the favour to sit for him a few hours. "If that is all," replied Humboldt, "with the greatest pleasure I will sit as often as you wish; do not make any ceremonies. I can only not give up my principle, not to go to the least expense

for my ugly face." Humboldt sat for the painter as often as he desired it; and when the picture was finished and engraved, the portrait of Humboldt was considered to be the most faithful; and he said frequently, "I have paid nothing for my portrait, and Isabey determined to revenge himself; he has made a speaking likeness."

When Napoleon's return was reported at Vienna, the most difficult questions had been decided, but the stoppage which had entered into the affairs continued. Then came the dreadful news which made so many tremble, but not Humboldt. He rejoiced at the turn, and exclaimed, "Excellent! now we shall have some life."

The treaties which had been formed were now confirmed, and all the powers prepared to check Napoleon's further progress. Humboldt's office was as important as before, and his name plays a conspicuous part in all histories of that period. After the signing of the Act of Alliance, all the plenipotentiaries hastened to head-quarters or to their courts. Humboldt, Wessenberg, and Clancarty, remained a week longer, busied in the last works of the congress, and then repaired to their destinations. Humboldt repaired first to Berlin. It had been determined that he should not return to Vienna, but that he should fill the post of ambassador to Paris.

On his journey home, Humboldt received the news of the victory of Waterloo. Scarcely arrived in Berlin, he was summoned to the peace congresses, and left for Paris a few days afterwards. There the king of Prussia, and the emperors of Austria and Russia, had also arrived; and now a commission of representatives of the allied powers was appointed, who were to fix the conditions of the peace with France. Humboldt and Hardenberg were again the representatives of Prussia.

Humboldt and Hardenberg endeavoured to regain all the dominions Prussia had lost in the war, and others which belonged more to Germany than to

France ; but their demands were not supported by Austria, and opposed by Russia and England, so that they were unsuccessful in this respect ; but it was not their fault that the expectations raised by this congress were not realized. As the details of this period have not yet been published, and the generalities are matters of history, we can only state that here, as in Vienna, Humboldt's activity was untiring, and that his patriotism excited the indignation of the French, who considered themselves aggrieved by his demands. Of the indemnification paid by France, Prussia and England received 25,000,000 francs in advance, 100,000,000 like the other powers, and 22,000,000 for the defence of the lower Rhine. The peace was signed on the 20th November, 1815 : the French-Prussian document by Richelieu, Hardenberg, and Humboldt. On the same day, the other treaties were signed, one concerning the contributions, a second on the military occupation under the Duke of Wellington, and a third very comprehensive one, concerning reclamation from all parts of Europe.

This last treaty caused great trouble, and was only carried by Humboldt's perseverance and activity. It is owing to him that all the literary and artistic treasures carried away by Napoleon, from Italy, and various parts of Germany, were restored to their original owners ; and especially the university of Heidelberg owes to his exertions the restitution of very valuable and rare manuscripts and documents. W. Eken, in his "History of the Formation, Spoliation, and Destruction of the Heidelberg Libraries," says : "That our hope to regain these 850 valuable and singular manuscripts was fulfilled, is owing entirely to the zealous and patriotic assistance of his excellency the Prussian minister, William von Humboldt."

Humboldt had less time for social intercourse in Paris than he had had in Vienna. And the Prussians had less inclination for it, as the angry feeling against them was very high. But Humboldt associated with many who could separate intellectual and

scientific from political interest; among them was Madame de Staël. He had also his brother here, although the king frequently claimed the society of Alexander. For the last time he enjoyed here the exciting society of the Count Schlabrendorf, who could not resolve to quit Paris, although tempting proposals for returning to Berlin were made to him. Oelsner could not resist those which his old friend Humboldt made him in the name of the government, and which promised him a position in the ministry for foreign affairs. He proceeded to Frankfurt before the end of 1815, to await his further fate there. Here he met Humboldt and his family again, from whom he received constant proofs of kindness and attachment, even when his enemies attempted to calumniate him. When Oelsner had published two volumes of his great work, in 1817, he received a pension from government, with the permission to return to Paris. The time when such people were willingly appointed to official posts had already passed by.

We must here also mention the distinctions which Humboldt received during this time from his own king, and from other monarchs. In 1813, the king appointed him a knight of the order of the large red eagle; then he received the iron cross of the second, and the Russian St. Anne cross of the first class. Soon afterwards the great cross of the Imperial order of St. Leopold was conferred upon him. In 1815, he received the great crosses of the Danish Danebrog order, of the order of merit of the Bavarian Crown, and the Baden home order of fidelity. And ultimately he received the highest honours of the war of liberation; Hardenberg and Humboldt were the only ones whom the king deemed worthy of the iron cross of the first class, with a white ribbon.

He was also one of the eminent men whom the Prussian state, after the termination of the second peace of Paris, presented with large estates. Blücher, Yorke, Bülow von Demewitz, Kleist von Nollendorf, Tranentzien and Gneisenau, Hardenberg and Hum-

boldt, and Knesebeck, were endowed with them. The dotation granted to Humboldt was to amount to 5000 dollars of annual revenue, (about 750*l.*) and he was to choose the estate himself. He selected the castle and estate of Ohtmachan, in the district of Neisse. The estate had formerly belonged to the prince bishops of Breslau, but had lately been incorporated in the state. Now it was given to the Humboldt family, and, in time, produced about 8000 or 9000 dollars annually to the new possessors.

On the 25th November, a day later than Hardenberg, Humboldt left Paris. He overtook him, arrived in Frankfurt on the same day, and remained there while Hardenberg proceeded to Berlin. The other members of the territorial commission soon arrived at the place of their meetings; they were sent for this especial purpose, and were provided with assistants and subordinates. With Humboldt, were count Flemming, councillor Bois des Landes, and the attaché Freiherr von Bülow. The latter was soon acknowledged as talented, industrious and very useful, and under Humboldt's superintendence, developed his talents till he became a statesman, to whom the most important offices were entrusted, and who subsequently became minister for foreign affairs, and the son-in-law of William von Humboldt.

The business of the commission progressed very slowly, but there was excitement enough in Frankfurt to make the time pass agreeably. Prussian regiments marched back to their homes through this town. The venerable Blücher remained here some time, Stein and his family lived here the whole winter, and Gneisenau came on a visit in the spring. Besides this, the ambassadors to the next diet arrived, and among them were men who do not deserve to be blamed if the diet had not the beneficial consequences that were anticipated.

Frau von Humboldt, with her children, was still residing in Berlin. In 1815, the marriage of the second daughter with the Lieutenant-general von

Hedemann was solemnized. She left Berlin in May of the following year, and proceeded to Carlsbad, and from there joined her husband in Frankfurt.

Of the good humour in which Humboldt found himself at that time, especially after the arrival of his family, Rahel Levin, now Frau Varnhagen von Ense, speaks with great delight. She had gone to Frankfurt to visit her old friends. She writes to her husband:—"I dined yesterday at Humboldt's, and Humboldt has got quite a new skin of amiability. Yesterday it reached its climax. He alone ruled the conversation, but so gently and mildly, that his influence was only remarked because he allowed nothing stupid or stiff to gain ground. He has the same tone towards his family, towards guests, and children, constantly relates strikingly comic things, but not as in winter, from thorough *ennui*, and in its harsh colourings. He has the greatest, most childlike sincerity on all subjects, and this gives a truly cheerful grace to all his sayings and doings. It seems to me that he has more sense than ever. Or have I more? In the evening I found him the same at the Countess Custines'."

In Frankfurt, Humboldt had more leisure to devote to his favourite studies, and it was here that he prepared his "Agamemnon" definitively for the press. He wrote the introduction to it in February, 1816. This is in itself a considerable piece of work, important for its characteristic of Greek poetry, especially of tragedy, and of Æschylus in particular, and important also for its theory of the art of translation. Humboldt dedicated it to his wife, who had, from the first, joined him in these studies. The translation of "Agamemnon" was published in the spring of 1816, in Leipzig.

Scarcely any year had passed since 1804 that he had not corrected something in this work, and at the last moment it was considerably improved by being compared with a new edition of the Greek poet, which had been prepared by the philologist G. Herrman, in

Leipzig. This enabled Humboldt to correct his translation by the entirely corrected and revised text, and he acknowledges that without this assistance he should not have ventured to submit the work, the choruses especially, to the public.

Thus this work, commenced in 1796, was at last given to the world. It is considered a masterpiece to this day; and the most perfect specimen of a translation from *Æschylus*. A. W. Schlegel, the great master in the art of translation, acknowledged Humboldt as an equal and competent critic of his works, especially because he had fulfilled the difficult task in the art of characteristic imitation of *Æschylus*.

This translation was a great boon to all friends of classic poetry. Goethe writes of it:—"‘*Agamemnon*,’ translated by Humboldt, has just reached me, and afforded me the easy enjoyment of a piece I had always extravagantly admired."

During his stay in Frankfurt, the intelligence reached Humboldt that Count Goltz was to retain the post of French ambassador, and that he would receive another appointment. The French minister, the Duke de Richelieu, a much over-rated man, found Goltz more convenient than Humboldt, and had intrigued with Hardenberg to get rid of the latter. The ostensible reason was the share Humboldt had taken in the humiliating peace, and Richelieu asserted that it would wound the French national feeling to see him as ambassador in Paris.

But the truth was that the Duke feared the presence of so important a man. Hardenberg submitted, and offered the London embassy to Humboldt, who was surprised at Hardenberg's submission and Richelieu's demands. The hope of living half for the state and half for study, united with his family, in a climate which would suit his wife's health was too tempting easily to be given up, although in some respects he preferred the London post. It would not have been agreeable to seem responsible for the consequences of the restoration amid such a miserable state of affairs.

Humboldt therefore accepted the proposition, and thus Count Goltz, a more narrow-minded man than even Richelieu, retained the Parisian office.

But it was not the intention of the government to allow Humboldt to depart at once for London. The affairs in Frankfurt had first to be arranged to a certain point, and the chancellor thought no one more fitted for this business than the man who had arranged them in Vienna and Paris. Afterwards he was required in Berlin to debate the constitution and a comprehensive financial code of laws; and it was also generally anticipated in Berlin that he would be found indispensable in the higher spheres of home government, and that he would succeed to a post to which he had more right than any one else.

In Frankfurt, Humboldt had also to represent Prussia in the solemn opening of the diet, as the deputy to the diet. Count von der Goltz (not to be confounded with the French ambassador, Count Goltz), although he had arrived in Frankfurt, was ill, and could not appear in person. The day before, Humboldt had effected the omission of church ceremonies at the opening of the diet; for it was in bad taste to make arrangements which could not be generally shared, and only reminded of the unfortunate disunion of the nation. Therefore, only a solemn procession of the ambassadors took place, to the palace of the Prince of Thurn and Taxis, in which the session was to commence at eleven o'clock. The entire *personnel* of the embassies was present. The presiding ambassador, the Count Buol-Schauenstein, opened the meeting with a dignified speech, which showed as much consideration for the independence of the single members of the diet, as it proved the necessity of a firmer national alliance. Thereupon the other ambassadors replied, in longer and shorter speeches. Humboldt expressed the opinions and wishes of his king, alluding to the advantages which would arise from a universal and constant union of the Germans, from a union which should be at home and abroad, securing,

protecting, and conserving, and which would facilitate the common purposes of independent, self-relying, and equally-privileged states for the common-weal, by firmly-constituted legal forms and arrangements. The speaker then expressed the hope that this would secure the safety of single states and of the common fatherland, and that thereby all the privileges would be maintained and supported, by means of which Germany might calculate on the esteem of other European nations. Finally, he added some personal remarks. "For myself," he said, "I could not have hoped for a more agreeable or honourable task than to express these sentiments here on this day, and to belong, though temporarily, to an assembly to whom I devote my esteem, and the ardent endeavour to labour for the same purpose with all my strength, and whose favourable confidence I request." Then the credentials were all submitted, and other formalities gone through. This ended the meeting, which was followed by a grand dinner at the presiding ambassador's, where a brilliant company assembled in the evening. In the town, cannons and bells announced the important event.

On the 11th of November, the first meeting for the transaction of business took place, and in this the Count von der Goltz was able himself to take his seat. It is fortunate for Humboldt that he had no further share in these deliberations. The result could not have gratified him, and he would have been powerless to effect any good.

The labours of the territorial commission detained Humboldt in Frankfurt until January, 1817, and then they separated without having quite concluded the affairs.

On the 11th of January, Humboldt with his family left Frankfurt. He proceeded first to Weimar, where he visited Goethe, and thence went to his estate of Burgörner. In February they arrived in Berlin. But Humboldt was not destined to remain long with his family. His eldest daughter, Caroline, was in delicate

health, and had been advised to take sea-baths in Naples. Madame von Humboldt therefore determined to repair to Italy again, accompanied by her daughters and her son-in-law, Von Hedemann. She was also afraid of the "fog island" on which Humboldt was soon to reside. But to one member of the family, at least, this separation was doubly painful, namely, to the youngest daughter, Gabriele. She had been betrothed in Frankfurt to the young Baron Bülow. But Gabriele was very young, and Bulow was to commence his career before their marriage, and for the present accompany his future father-in-law to London as secretary of Legation.

In April, Madame von Humboldt started on her journey, and arrived in Rome on the 3rd of May. In summer she went to Naples, and returned to Rome in autumn. She deferred her departure from time to time, delighted with Italian life, and patronizing art and artists as before. Her own health forbade her to venture into the London climate, and she also awaited a turn in the career of her husband. On the 19th of October she wrote to a friend: "I shall remain here during the winter, and return to Berlin in summer, where I shall be present at Theodor's (her eldest son's) marriage. In August, I shall arrive in the 'isle of fogs.' I part from Rome as I would part from life." Her first station was the baths of Nocera, in the papal dominions. Then she again returned to Rome, and remained there until Humboldt seemed to have a firm position in Berlin, in the summer of 1817. She then returned home, and brought splendid works of art with her.

Humboldt remained in Berlin for some time, and here his first disagreement with the state-chancellor, Hardenberg, began. He was still on the best terms with him, and the king also gave him repeated signs of favour. It was at this period that he received the before-mentioned dotation for his services; and he was among those whom the king summoned to his new cabinet, as a sign of confidence. But this new

creation had scarcely entered into life, when it turned indirectly against its originator, Hardenberg; and it was Humboldt who led the attack, and gave it importance by his weighty name.

A great change had taken place in the condition of affairs during some years, and it seemed doubtful whether the chancellor could stand against them. The great merits of Hardenberg cannot be denied. He had courageously directed the government at a period of oppression; he had founded a free peasantry; had lessened the privileges of the aristocracy, and had created rights of humanity, without which civic rights would be nugatory. The war then interrupted his activity, and he again showed praiseworthy qualities in his direction of foreign politics, especially during the critical years of 1811 to 1813. Difficult as the times were, they favoured his liberal policy in many respects; the king supported him against his opponents, for the privileges of the crown were scarcely affected. But when the opposition increased, the chancellor's weakness became more prominent, especially his want of energy,—an indecision and hesitation which avoided letting matters come to a crisis,—a conceding and weak policy where he should have made a bold stand against his opponents. Vain of his position, he tried to keep it by any means; jealous of talents which might surpass him, he endeavoured to remove such talents from the affairs, or at least from their central point, while unworthy individuals frequently succeeded in gaining his favour, and with it power and influence. But he was especially wanting in manly force to lead the vessel of state much longer in troubled times. He liked to put a check on one minister by the presence of another, but they were soon too strong, and he was glad that by siding with the victorious party he could at least keep his position.

It was natural that a reaction should take place to a certain extent. The public spirit had become so mighty during the war, so many high-flown hopes

had been cherished, that the calm observer—especially one who knew Prussia's condition—could foresee the ebb which would follow the tide. But no one could suppose that the great movement would have such insignificant fruits, and all Germany anxiously watched a state which had shown itself so powerful, and had become more powerful by its new acquisitions on the Rhine.

To effect the reconstitution of Prussia, the king had summoned all his ministers and councillors. They were divided into several parties; the chief of the opposition—which consisted of the nobility, the absolutists, and all those who feared to lose by the changes in the constitution—was the Prince Wittgenstein, who enjoyed the confidence of the king in the highest degree. He was at the time minister of police, but subsequently accepted the post of minister to the palace, where his influence was a more secret one. The party of progress was divided into several different classes, but all demanded a bold, liberal, energetic government. First there were those who, with small confidence in constitutional arrangements, held in memory the traditions of Frederic the Great, united with those of the last war, who hated all reaction, and considered the freedom of the press as the best guardian of an otherwise uncontrolled government. The chief of this section was Gneisenau. Most of the generals belonged to it, and also Begme. Next to these men ranks the no less energetic party of Freiherr von Stein. But although its chief advanced its demands impetuously, those demands were in themselves undefined and vague. So much only is clear, that they wished measures to be taken in accordance with the spirit of the times, but their own measures were not always in accordance with this spirit. Görres represented a decidedly constitutional party, but his opinions savoured of the middle ages. Related to the two latter opinions in many respects, but with more political capacities, were men such as Niebuhr, Vincke, and others who were opposed to a manifold govern-

ment, who wished to circumscribe the power of the state, in the manner of the English constitution, and who, by self-government in the lower spheres, wished to develop the capacity for sharing the responsibilities of government of the higher ones. And, finally, there was Humboldt's party, which advocated the introduction of liberal principles, without exceeding the bounds of what was for the time possible or expedient for Prussia. They also wished to circumscribe the powers of the government, but they demanded guarantees for individual liberty, which is often as much tyrannized over by the corporate as by the state authority. They recognised the necessity of accustoming the citizen to take an independent share in political activity, and therefore demanded a representative constitution, by which the interest of the people in public life would be best formed and developed.

Between these parties—of which those on the one side wished to stop and retrograde, while those on the other demanded further advancement on the path which had led to their liberation—stood the state chancellor, personally inclined to favour the latter party, but wavering and hesitating, so as not to ruin his position with the others, and always ready to lean on the one if the other should grow too strong for him. In the meantime, the opposition gained ground, and Hardenberg gradually felt himself inclined to join them.

On the 30th March the council of state was solemnly opened, and the debates on the constitution commenced, which, however, did not then lead to a decided result. The second matter of debate, the finances, was treated much more vigorously. The minister of finance, Count von Bülow, a nephew of the state chancellor, had submitted the project of a law of taxation to the king, who submitted it for revision to a committee of the council of state, of which Humboldt was appointed president. The project, however, did not give satisfaction, and was much opposed. It seemed especially unsuitable to oppress

the people with the hated and oppressive consumption taxes. In this committee Humboldt showed his strength, and reported to the council of state on the subject, in a masterly speech, on the 2nd July. He showed, in liberal and bold terms, the faults of the falsely-favourable report which the minister had made on the Prussian finances, and pointed out the infeasibility of his project with great energy and vivacity. A great agitation then prevailed. Several members opposed him; he quietly listened to their objections, and replied to all in a speech which was somewhat longer than the first one. Nothing was effected, and Bülow's plan was defeated. But Humboldt's speech was received with unmitigated admiration, and friends and enemies alike acknowledged his great eloquence and his penetrating and bold treatment of his subject.

Hardenberg soon felt the consequences of this debate, and saw that his nephew could no longer retain his situation. He had to resign in December of the same year, and he satisfied with a post in the ministry of commerce, which was made for him. The relation between Hardenberg and Humboldt was much shaken by this event, and even the king seems to have been suspicious of the latter. But the public now looked upon Humboldt as the leader of the opposition, and the report was frequently circulated that the chancellor intended to retire from the administration. If he had at this period resigned his post in favour of Humboldt or Gneisenau, the two favourites of the public, he would have retired in the full glory of his reputation, and more energetic hands would have effected what his weaker ones failed to carry out.

In Berlin, Humboldt found his old friend Wolf again; Wolf, attacked by his students and his fellows, felt himself very uncomfortable in his position, and attached himself closer to Humboldt. Politically, he also took part for Humboldt, and many thought he had been left by him to watch the current of events. Some said, even, that Wolf communicated to Humboldt in the ancient Greek language, the most dan-

gerous and suspicious news, but this is certainly unfounded.

In July, Humboldt left Berlin, and made first a journey to Silesia, to choose the estates which were to form his dotation, then, in the beginning of August, he visited the state chancellor in Carlsbad, where he was recruiting his health. Although their connexion had been shaken by the late events, all was still apparently smooth, and the arrangement was here made that Humboldt should wait for the chancellor on the banks of the Rhine, to arrange the new estates with him.

But Humboldt had scarcely departed when Hardenberg regretted this arrangement, and sent Humboldt a despatch that his presence in London was urgently necessary, and that he was to proceed at once to his post. The chancellor would not keep a man near him who made such an impression, wherever he spoke or acted, and who had only just before given him such trouble in the state council. He therefore sent him this order, which could not easily be disregarded. Humboldt's friends, indeed, advised him, as the chancellor seemed unwilling to fulfil his promises regarding the ministry, to refuse London, and re-enter the council, as during his absence he would lose his influence, but Humboldt determined to go.

After spending a few weeks in Frankfurt, Humboldt proceeded to London in September. He went by way of Brussels, where he had an audience of the king, and remained a short time; and the London journals of the 8th October, 1817, announced that the new Prussian ambassador, Baron von Humboldt, had arrived in London, accompanied by his secretary of legation, Freiherr von Bülow. He waited on the prince regent on the 10th October, but had not a formal audience for the presentation of his credentials until the 5th December, as the death of the princess Charlotte, heiress presumptive to the throne, had placed the court and country in deep mourning.

The prince regent was very partial to Humboldt, and distinguished him by treating him with great cordiality. The London Courier of the 26th March, 1818, states: "On Saturday, the prince regent honoured a splendid dinner, given by the Prussian ambassador, Freiherr von Humboldt, by his presence. He declared his wish that the old English heartiness should reign at the table, and sang two songs himself after the cloth had been withdrawn."

In business, indeed, the old toryism reigned, and Castlereagh was still foreign minister. But the opposition was already powerful in the parliament, and the changes commenced which subsequently brought Canning to the head of affairs. The affairs to which Humboldt principally devoted his time in London, were the constituting measures against the Barbary pirates, in order to put a stop to piracy on the north coast of Africa. Then Humboldt signed a treaty for the extinction of the slave trade, promising that Prussia would support England's right of search, with the other powers of the continent. And, finally, Humboldt was active in the organization of the Prussian loan of 1818.

Shortly after his arrival in London, Humboldt determined soon to resign his post. His wife had written to him that her health would not allow her to reside in the damp climate of England, and such a separation, for any length of time, was insupportable to Humboldt. He therefore requested to be dismissed from his post in the spring of 1818.

But now the ingratitude towards him was plainly shown. In November of the former year, the ministry of worship and public instruction had been given to the Freiherr von Altenstein, and now, as if there were not a man in the country fitted for the post, a foreigner was summoned to fill the office of foreign minister. Every one had expected that this place would be given to the man who had served his country so faithfully and effectively in the most difficult times; and the chancellor had even promised

it to Humboldt. But the diplomatists disliked him. Russia would have been dissatisfied with his appointment; for such a superior mind as Humboldt's could not have consented to a humiliating subjection to the autocrat. The post was therefore given to Count Bernstorff, until then Danish ambassador to the Prussian court.

This appointment caused a great sensation. Humboldt himself seemed irritated less by the occurrence than at the chancellor, who had really not acted fairly towards him, and the apologies and explanations of Hardenberg's friends even seemed lame. One of his supporters writes: "Public opinion had expected that William von Humboldt, and not Bernstorff, would be appointed to this post, and Humboldt's penetrating reason needs no praise. But he, in common with all men of great superiority of mind who have not the devotedness of heart which may be termed *amiability*, has the misfortune to be more feared than loved. No one likes to be detected in the secret recesses of his thoughts by another, and Humboldt's native penetration, heightened by the study of profound sciences, his talent for seeing through others, was intolerable to the so-called clever men. Great talents soon became intimate and friendly with him. If he was indeed superior to them in scientific knowledge, they liked to learn from him, and sunned themselves in the rays of his genius. It was, however, necessary to place a man of sense, frankness, and *amiability*, but of inferior talent, at the head of affairs which subject their leader to frequent personal intercourse with the clever people, the ambassadors; and the position is not fitted for a man who has only mind, and nothing else." Freiherr von Stein wrote to Von Gagern on the same subject: "Bernstorff is an excellent man. I do not know what stand he will take with the king and the chancellor. Whether he has the strength to clear the Augean stables, remains to be seen. Humboldt excels him infinitely in mind and knowledge, and I admire the skill of the state

chancellor in keeping all talented great men out of office. The spirit of the Lord has deserted the old sinner, and His blessing has been taken from him, for nothing succeeds and nothing flourishes under his rule."

It seems that Humboldt, when he received the announcement of this appointment, at once resigned, and demanded his dismissal; for in August the report was circulated that Humboldt had sent in his request for a dismissal, and that he intended to retire. All these reports were, however, premature, as it seems that the consideration of Humboldt's grievances had been deferred to the great congress of kings and ministers which was to take place at Aix-la-Chapelle.

In September, Alexander visited his brother in London. He came from Paris and was proceeding to Aix, whither the king, who seemed to take increasing pleasure in his society, had summoned him. William was also summoned to be present, but did not leave until some weeks later than his brother. He did not return to London, and Freiherr von Bülow was at the head of affairs for several years.

From Aix, Humboldt proceeded to Frankfurt, where the former territorial commission again met and concluded their former labours. From Frankfurt, Humboldt proceeded to Berlin, where Hardenberg was obliged reluctantly to appoint him to the ministry of the interior, which was divided into two branches for the purpose. The Count von Witzleben, adjutant and confidant of the king, a liberal-minded man, wished for his presence to keep a check on Hardenberg, and used his influence with the king to procure the appointment. Humboldt was appointed minister of the interior, in conjunction with the minister Von Shuckmann, but their departments were divided; Humboldt was also named commissioner of the principality of Neufchatel.

When Humboldt succeeded to the ministry, on the 12th August, 1818, the political horizon was darken-

ing all around. The reaction gained strength, and some very lamentable individual events had given a plausible colouring to their projects. The king even declared that every time was not the right time to make a change in the constitution of a state, and that he who had given the promise, kept to himself the right of appointing the period of its fulfilment. In this close atmosphere the catastrophe of the murder of Kotzebue made matters still worse. The universities were watched, suspicions and accusations arose on all sides, and men such as Arndt, Jahn, Welcker, Reimer, &c., were treated as conspirators.

Public opinion expected much from Humboldt's appointment, for he was considered the chief support of liberal opinions in Prussia. The hopes of the reformers and constitutionalists were all fixed on this talented advocate, who had only lately in London had the opportunity of gathering new experience on parliamentary institutions. Nor did he deceive these expectations as far as lay in his power. Ideas of liberty had early taken root in his mind, and he had conceived the idea of individual liberty with almost too little regard to the requirements of the real world, and especially of the Prussian nation and the present time. We have seen that he wrote on the subject of fixing the extent of influence of the state, and he advocated a freedom for the individual for which men are seldom fitted. The Germans especially were far from being able to dispense with the interference of the state to such a degree. But although insight in practical life soon taught him to adapt his views more narrowly to the wants of the people, he did not therefore give up the principle. His statesmanlike talent showed itself in that he, when he had to do with the reality, followed not only the bent of his own mind, but consulted also the wants and wishes of the majority of the educated men of his time and of his people; that he, penetrated by the feeling that there was something higher in the prevalent ideas of

any epoch, sought out these ideas, connected them with his own views and thoughts, and thus endeavoured to act with the universal spirit of progress.

It was his firm conviction that a people could only be strengthened and elevated by free institutions. He would have realized this conviction in the manner most consonant to his feelings, had not his practical mind prevented him. He therefore remained true to his principles, but studied more nearly the most urgent wants of the nation and the ruling tendencies of the age, which were directed to constitutional life, and the commingling of the people with the affairs of the state. That this was the ruling tendency of the age was shown by the opinions of his youthful and intelligent contemporaries; that it was the wish of the great majority, which at that time showed little inclination to exercise its voice in public affairs, was proved by the happy results which every agitation of the people from its centuries-long apathy had worked in its character.

And finally, he saw that this practical view would go hand in hand with his ideal one. The German nation is so unused to political independent action, that it can only be accustomed to it by, as it were, forcing it to occupy itself with practical interests. The universal interest is still the most exciting. It awakes the practical sense most easily, and step by step the power is formed of dispensing with the directing tutelage of the state. And the Germans need a strengthening of their sense for the common interest in a national point of view, or they will run the risk of being again oppressed by Romans or Cossacks at the next opportunity.

Humboldt asked nothing from a Prussian constitution which was impossible under the circumstances. He wished to found the commencement of constitutional life, and pave the way for further privileges which might easily be added. He did not wish Prussia to make a rash leap forwards, but to advance

steadily with whole, not half measures. The government was to acquire the means, by representative deputations, of knowing the wishes of the people.

It was not his opinion that a state could be built up by mere theories, and considered it a fortunate circumstance that the former history of Prussia contained so many examples which might be consulted, and so many elements which might be employed. In all respects Humboldt's recal to the ministry encouraged the brightest hopes, and it was known that he would not consent to a withholding of the promised constitution on paltry grounds. He devoted himself zealously to the work, and has immortalized his short career by these exertions, and by the events which so speedily terminated his ministerial career. Unlike many who forget their liberal opinions when they have ascended the ladder, he insisted on his views in the most emphatic manner, in spite of the reaction which was daily gaining more strength.

But his energetic interference in the formation of a constitution did not alone cause his dismissal, for the constitution question was yet too much in its infancy to excite much apprehension. The struggle was continued on another field, and in a much more violent manner, as here the point of debate was a positive retrogression. It was the Carlsbad decrees which were proclaimed on the 20th of September by the diet.

The contents of these decrees are well known. They introduced measures against the schools and universities; circumscribed the freedom of the press by the censorship, and put down a central investigating commission in Mayence.

Humboldt had been irritated for some time: irritated by the turn which had been given to the unfulfilled promises of a constitution and representative assemblies, and by the whole policy of the chancellor, who, instead of taking his stand by the support of public opinion and of talented men, expected advice and assistance only from Russia and Austria. The

Carlsbad decrees disgusted him ; he declared them to be infamous, unnatural, and insulting to the nation, and did not hesitate violently to oppose the ministry. He united himself with the high chancellor Von Beyme, and, supported by the minister of war, Von Boyen, commenced an opposition to the ministry, which he continued perseveringly and systematically, and in which he violently attacked Hardenberg and Bernstorff for their share in the Carlsbad decrees.

In his first attack, he declared that a minister of state, a minister of foreign affairs, exceeded his powers if he ventured to promise to make Prussian subjects amenable to foreign legislatures. He demanded that the minister Bernstorff be impeached, and the whole measure be annulled, and proposed at the same time that such projects should in future always be first submitted to the ministry. This accusation was received very ungraciously by his majesty.

In the second attack, the point was treated politically, and the decrees declared to be inconsonant with the powers of the diet, and it was alleged that such measures gave the diet a power fatal to Prussia's independence, and therefore proposed the non-acceptance of these decrees by Prussia. This took place in October, 1819. The consequences only followed at the end of the year, which proves that they were preceded by some difficulties.

Such an attack was unprecedented in the annals of Prussia. It was feared that the whole ministry would be carried away by Humboldt's eloquence, if energetic steps were not taken. Hardenberg, therefore, coalesced with his former opponent the Prince von Wittgenstein, to oppose Humboldt. Wittgenstein proved to the chancellor that the opposition must be undermined. The whole nobility was excited ; the cabinets of Vienna and Petersburg, who only wished for the overthrow of the opposition, were not idle. The Prussians hated Humboldt especially. Austria was alarmed : a few more attacks like this one of

Humboldt against the Carlsbad decrees, and the great reactionary scheme would be destroyed.

An accidental circumstance facilitated their plans. The minister of war, Von Boyen, disgusted by several equally illiberal militia and military decrees, demanded his dismissal, which the king granted, and his example was followed some days after by Von Grolman, director of a department in the ministry of war.

The facility with which Boyen's dismissal had been effected, inspired the party with more courage. They told the king that nothing was gained as long as the most able and most talented of all remained in the ministry. It is said that the king hesitated, but Hardenberg and Wittgenstein insisted, and on the 31st of December, 1819, Humboldt and Beyme were dismissed. It may be said that they were thrust out of the ministry as dangerous. The ministerial pension of 6000 dollars was offered to Humboldt, but he refused it and retired to private life. Thus Humboldt's connexion with the court was entirely broken off. The king was deeply offended to find Humboldt, whom he had formerly met every evening in his palace, or that of the Princess Radziwil, in such violent opposition to his will. The people were indignant, although they could not vent their anger, and the French papers mentioned Humboldt's retirement, and that of the other men who had done so much for their country, as a great loss for Prussia.

The reaction had now conquered and showed herself boldly after the fall of the opposition. Hardenberg became the faithful servant of Metternich, and died with the reputation of having done much for the cause of despotism and retrogression.

Humboldt could retire with the consciousness of having done his utmost without having exceeded the bounds of loyal opposition. He willingly retired to private life, as he saw no means of working good on the field of politics. It has been said that he might have continued the struggle on another field, and boldly, but for this there was no room in Germany or

Prussia; Stein also could only vent his indignation in letters. Humboldt, however, did not cease to take the warmest interest in the progress of his fatherland, of humanity, and of freedom, and expressed his opinions on the questions of the day with frankness in private life.

He willingly retired from business, for he had to work on his own field before his death, and achieve greatness there. He carried no feeling of personal anger with him to his retirement, and associated subsequently with Bernstorff as with Stein. But it is remarkable to see the manner in which he subsequently judged of Hardenberg. Varnhagen von Ense, that well-known artist in biographical descriptions, had told him that he intended writing a life of the state chancellor. Humboldt expressed his pleasure that such a task should be assigned to such hands, and thus replied to Varnhagen's letter (7th May, 1830): "My feelings towards this man (Hardenberg) have always remained the same, even at the time when we were entirely opposed to each other, and I rejoice, therefore, that he will meet with a kind and considerate treatment at your hands, which he deserves. It may in truth be said of him, that if we consider the events of 1810 to 1816 as the progress of a drama, a poet could scarcely have formed a more appropriate character for introducing them into Prussia than his. I have frequently felt this, and trembled for the issue, at times when he seemed to be in great difficulties. But it is certainly true, that I would rather for myself have resigned all active share in this drama, that I might stand firmly above the events."

He, indeed, attached little importance to his own share in the drama, and to what had befallen him. His brother Alexander repeatedly requested him, shortly before his death, to dictate something on the history of his dismissal. His answer was always the expression of profound indifference for such insignificant circumstances, with which he did not consider it worth while to occupy himself.

CHAPTER IX.

WE have now accompanied Humboldt to the end of his political course, and have arrived at the last stages of his life. We saw how readily he retired from the service of the state when his talents were no longer acceptable. He returned to private life, but he did not, therefore, cease to strive and to work. All the power and energy which he had so successfully displayed in the management of public affairs were now concentrated on science and art; his inquiring spirit penetrated to the deepest and slightest peculiarities of the manners, and especially the languages, of distant regions, and, with lucid spirit, sought their connexion with the history of human civilization. He ornamented his family seat of Tegel by the collection of magnificent works of art, and made it an intellectual temple, a cheerful asylum for his friends, an instructive means of study for himself. There the muses frequently inspired him, and he composed several minor poems. Content and calm, full of confidence in an eternal existence, he gently departed from the circle of his friends, ever memorable to all who knew him.

Little could be hoped for on the field of politics at that period; a pure character only incurred the danger of being soiled, and it had, besides, been frequently regretted that Humboldt had not leisure enough to continue those literary labours for which he had shown such great ability. He therefore devoted himself to a sphere where something great might yet be achieved, and something new and important be founded. He

did not, therefore, cease to take an interest in the affairs of his country or the progress of humanity; but his labours were all directed to science and art. He could, at the same time, live quite according to his taste, free from forms and demands which politics make, and could therefore display the amiable part of his character more plainly, and close the sphere of his life in cheerfully-calm domestic happiness.

And Humboldt did not turn his attention entirely from matters affecting practical life. In an essay "On the Duty of an Historian," he taught a dignified conception of universal history, and gave the sketches for historical philosophy, which, until then, had not existed. But he devoted himself principally to comparative studies, and to the philosophy of languages. He submitted the results of his inquiries gradually in various meetings to the Royal Academy of Sciences in Berlin. He comprehends whole quarters of the world, with their languages, in these studies, but fixes them at last on the island group of Polynesia, and on the combination of his investigations on the ultimate reasons and the universal nature of language, and has left the fruit of these reflections in three quarto volumes. But all this does not fill up the rich contents of the last years of his life. He is active for art in the most extended sense of the word, gives reviews of the coryphæes of German literature, with whom he has been so long and so intimately connected. And finally, the poetical genius inspired him also. In a splendid series of sonnets, as in a diary, he recorded the serious and cheerful emotions and feelings of his last days.

✓ These leisure years may be divided into two portions,—that preceding and succeeding the death of his wife. The first portion he devoted to a most extended study of languages, and the social and intellectual amusements of the town. He lived in Berlin during the winters, and the summer generally in Tegel, sometimes on his estate in Magdeburg, in Burgörner, or on his newly-acquired Silesian estates.

The last years of his life, however, he devoted to the chief purposes of his age, and retired (resembling the ancients in this also) to the solitude of country life, to his castle of Tegel, which he had made into a real palace of the muses.

Longing for domestic life principally had induced William von Humboldt to give up his post in London, and in the autumn of 1819 the family were again united. But now, when the burden of public affairs had been taken from him, he could enjoy this reunion, which he had not been able to do since the days in Rome. He devoted himself with increasing affection to his wife and children; and, indeed, the amiable part of his nature became more prominent, and the reserve melted away, behind which he had concealed his real self in the days of political activity. His wife had also satiated her love for the south; his children were grown up. Theodor, the eldest, was married; and now, when the war was over, he was to go and superintend the newly-acquired estates. The younger son, Herman, learned forestry after he was grown up, but subsequently undertook the management of the half of the estate of Ostmachan, and cultivated it with praiseworthy zeal. He was a quiet simple man, with agreeable manners, and remained unmarried. Carolino, the eldest daughter, also remained unmarried. She much resembled her father in character, and was, after little William's death, his favourite. She was learned in languages, and a serious, clever woman, with great depth of feeling, and some peculiarity of character. Adelheid, the second daughter, lived always near her parents, with her husband, Major von Hedemann, who was adjutant to Prince William, brother of the king. The youngest daughter, Gabriele, was betrothed to Freiherr von Bülow, who was, at the time of which we write, still *chargé d'affaires* in London.

They inhabited the first storey of a very large mansion in one of the finest streets in Berlin, paying, as Niebuhr mentions in some of his letters, a rental of

1500 thalers (225*l.*). In this house Madame von Humboldt died.

Here they again gathered round them all the intellect and art of the metropolis, not excluding the illustrious in station or politics. Princes of the royal house, the highest officers of state, the first lights of science at a period when Schleiermacher, Wolf, and Hegel, and subsequently Alexander von Humboldt, were the ornaments of the capital and the university—whither many rare and aspiring talents also flocked—all these met in the saloons of this hospitable house, to which the highest ornaments of the female sex lent attraction and brilliancy. And amidst this profusion of mind and talent, the grace of the lady of the house remained paramount; and that social talent which had made her so popular in Paris, Vienna, and Rome, combined, as it so rarely is, in so high and so well-balanced a degree, with intellect and even erudition.

And then Humboldt himself! The thinker, the learned man, the statesman who knew most of the countries of Europe from experience, and included the whole earth in his comprehensive studies; who to-day spoke sterling wisdom to a ruler of the states, and to-morrow investigated the newest revelations of science with the first scholar of the age; who at one moment revived the remembrances of his Jena days, at another related adventures and anecdotes of his political life, and then again gave a sketch of the happy days he had spent in Rome and in Albano: Humboldt! who possessed all the means of ruling over other minds, imposing dignity, flow of eloquence, and sharpness of satire and irony; who was possessed of an infinite cheerfulness, which was vented sometimes in joking humour, sometimes in amusing conversation, as if he looked at life only from its brightest side; who, as he had not concealed his ideal tendencies in the bustle of politics, now, when many thought him absorbed by the minutiae of philologic studies, poured forth a roaring flood of thought which had been cultivated by science, and revealed at the same time a

depth of feeling which no one had suspected in this apparently cold soul, and from his penetrating reason.

And while Humboldt enriched the intellectual life of the metropolis by his presence, he was also enabled to take a part in those intellectual, artistic, and social enjoyments, for which, among all German towns, Berlin was so eminent. Much of what was there united had been partly founded by his assistance, or raised by him to the eminence on which it stood. Take alone the university which he had founded ! He could already rejoice over the rich fruits of the harvest he had planted.

Towards the end of May, 1820, Madame von Humboldt went through Dresden to Toplitz, and thence to Burgörner. Her husband remained in Berlin a little longer. On the 29th of June, he delivered his first address in the Academy of Sciences in Berlin. He read an important treatise on "comparative philology as relating to the various stages of philologic development." When this essay was publicly read in the meeting, on the 3rd of August, in honour of the king's birthday, he had already departed, and Professor Buttman read it in his stead. During the same year, Humboldt was elected honorary member of the Society of Arts in Berlin.

The year 1821 commenced with a very agreeable event for the family ; Gabriele's betrothed, Freiherr von Bülow, returned from London, after having for two years managed the affairs of the embassy there. He now entered the ministry of foreign affairs as privy councillor of legation, and was particularly active in the department of commerce. On the 10th of January, his marriage with Humboldt's youngest daughter was celebrated. It must have been gratifying to all parties, that now, when he was intimately connected with the Humboldt family, he was able to spend some years in Berlin.

On the 12th April, 1821, Humboldt read an essay "On the Task of the Historian ;" and after this period he read a paper once at least every year to this scien-

tific society. He also published in the same year his long commenced work, "Investigations as to the original inhabitants of Spain, through the medium of the Basque language."

An unfortunate incident disturbed the peace of the family during this year. The brave son-in-law of Humboldt, Major von Hedemann, had a brother who had been very wild from his earliest youth. His eccentricity was unbounded, and caused much grief to his excellent family. He had served bravely in the war, and then been appointed as inspector of forests in Westphalia, without, however, giving up his eccentric course of life. In this mood he had the mad idea of exciting a riot in West Prussia to procure the long promised constitution, and to effect a change in the administration. When he had collected together a number of uneducated men, he went to work, not suspecting that he was already betrayed. The government allowed the riot to break out, and then seized Hedemann and his companions, and gave them over to the courts of law. The news of the rebellion arrived in the beginning of July, and caused a great sensation. Humboldt, who was in Ottmachan at the time, is said to have been much annoyed at the circumstance. How easily could his opponents make use of this fact, and connect it with his former opposition. But the king knew Humboldt too well to give any credit to such insinuations, and for his family's sake, treated the unfortunate Hedemann with great consideration. He was taken to the fortress of Grandeuze, but liberated after a few years, and, it is said, reappointed to his former place.

On the 17th January, 1822, Humboldt read his treatise "On the origin of grammatical forms, and their influence on the progress of ideas," in the Academy of Sciences. In the summer of the same year he spent some time in Burgörner, where the Freiherr von Stein paid him a visit.

During the years 1822 and 1824, Humboldt built his new castle of Tegel. In place of the old hunting

seat in which he had spent his childhood, he erected a more splendid building, and made it a seat in which an art-loving mind could appropriately end his days. The inheritance became a new creation. In order suitably to retain an old turret built in the time of the great elector, he made a clever plan, according to which the four corners have turrets. The whole edifice retained an antique character. The interior of the castle was ornamented with the most select treasures of sculpture and painting by ancient and modern masters, which had been principally collected during the long residence in Rome. Humboldt wrote of his seat to Gentz, in May, 1827 :—" I have here erected a dwelling full of gypsum casts and marble statues which would afford you great pleasure. You knew the old house. Now you would wander among beautiful statues, of which, especially, those in my room do not suffer by a superabundance of costume."

He made Tegel a beautiful seat in other respects also. The gardens, which his father had planned, were now formed into a beautiful park, which Humboldt ornamented with monuments, and especially by the monument which he raised to his wife, and beneath which he also was buried.

Thus this spot, stamped by his genius and hallowed by the last few years of his life, has become, by the new castle and park, by classical mementoes of every kind, and by a select and excellently arranged artistic collection, one of the most interesting environs of the Prussian capital. During Humboldt's lifetime already Tegel was hospitably open to all visitors, and the inhabitants of Berlin did not fail to appreciate such a favour.

In the commencement of the year 1823, Humboldt saw his brother Alexander again. He had met the king of Prussia at the congress of Verona, and accompanied him on his journey through Italy. He now returned to Berlin with him, intending to remain some months, and then to repair to Paris again.

During this visit our Humboldt recommenced his

intercourse with the court. His intimacy with the crown prince had never been interrupted, and from that period the king paid an annual visit to his former minister in Tegel.

Humboldt's worth had been much acknowledged and remembered during the first months of the year 1823, and the public expected that he would be now selected as the leader of the state. The state chancellor, prince Hardenberg, had died at Genoa in December, 1822. Herr von Voss, who was appointed his successor, at that time enjoyed the perfect confidence of the king, and had entered into the active service of the state a few months previously. But Voss died on the 30th January, 1823, and the king was in great embarrassment whom he should select for the important post of prime minister. One man whom the king had in view, the field-marshal count Kleist von Nollendorf, died three weeks later than Voss. The embarrassment increased. A conversation has been communicated to us which the king at that time had with his most confidential counsellors, but as it is a verbal communication, we do not give implicit confidence to it. It is, however, in part, confirmed by documentary evidence.

The king gave an audience to the Prince Wittgenstein, General von Witzleben, and the councillor Albrecht. He spoke of the death of the minister Von Voss, and continued: "I have for some weeks considered how the post of Herr von Voss, whose death is greatly to be regretted, can be filled. Of all the persons whose position fits them for the post, the minister von Humboldt is the most capable, but he enjoys so little confidence abroad, that he can in no way be thought of. I have gone through the list of all my ministers, and have come to the conclusion that Count Lottum is the most appropriate. Now, tell me your opinion."

Albrecht.—"If your majesty cannot take the minister von Humboldt, I also believe that Count Lottum is the most appropriate."

Witzleben was silent, and his majesty said to him, "What think you?"

Witzleben.—"The minister Von Humboldt, is, in my opinion, the only one properly qualified; but if your majesty has not the entire confidence in him without which he could not fulfil the important duties of such a position, I would, at least, humbly suggest that he be ~~made~~ president of the council of state, and member of the ministry, and that Count Lottum be president of the ministry."

"No, that will not do," replied the king; "the two posts cannot be separated."

Prince von Wittgenstein.—"Count Lottum is a very sensible man, and has very conciliatory manners."

The King.—"But whether he will have the necessary energy to insist wherever it is requisite, is another question, and the only objection I feel to him."

Prince Wittgenstein.—"He certainly is weak."

The King.—"But I know of none other."

The king is then said to have enumerated all his ministers, ably characterizing each one. Witzleben again spoke in favour of Humboldt, and of the just views he always had on the state of affairs.

This conversation shows that it was principally consideration for foreign countries, and, as we shall subsequently prove, for Russia, which prevented Humboldt's appointment as prime minister of Prussia, and that General Witzleben principally supported him. We have previously mentioned that Witzleben was a friend and supporter of Humboldt, and had frequently applied to him for his opinion in difficult matters; it is therefore natural that he should take this opportunity of speaking in his favour, and wish him, whose mind and talents he so admired, to be placed at the head of public affairs.

Witzleben had another opportunity of insisting on the merits of Humboldt, when the king submitted to his ministers some projects of improvement in the Prussian management of affairs made by the prince

Hardenberg before his death. In Witzleben's remarks, he strongly recommended the king to select Humboldt as chief minister of state. But the time was not favourable for such a leader of the Prussian state, and he would scarcely have been able to maintain himself in the position. His opponents probably prevented his appointment, and the minister, Von Altenstein, principally, is said to have used his influence against Humboldt. Witzleben, however, boldly opposed these machinations, and always recurred to his favourite name, Humboldt, combating the objection that as president he would have too great power in the council. Witzleben asserted that the president could have but one vote, as all the other members, and said: "It is the *mind* which decides, and that, certainly, Herr von Humboldt possesses in a high degree. But Herr von Altenstein will not fear that, or declare it contraband."

The king, however, kept to the views he had once enunciated. Count Lottum was, indeed, not named president of the ministry, for this post remained vacant, but he received the post and title of prime minister.

Humboldt thus remained at liberty to devote himself to science and to revel in the domains of thought.

In the autumn of 1823, he was in Thuringen, and visited Goethe in November. This great poet was highly gratified by the visit of his old friend. Humboldt brought with him the letters which Schiller had written to him during the speculative period of his life; but Goethe, whose mind was foreign to this speculative tendency, does not seem to have greatly enjoyed these letters, for he at this time called this speculative epoch in Schiller's life an unhappy one. Humboldt opposed him, though without wounding Goethe's susceptible nature. On the 14th November, Humboldt was invited to the court of the archduke, and was one of the first who received the great cross

of his newly-instituted order of the White Falcon of Watchfulness.

The next summer Humboldt seems to have spent entirely in his new palace of Tegel. Niebuhr paid him a visit there, in the commencement of June. The next winter Niebuhr remained in Berlin, when Humboldt had again returned to town. He writes in his letters, that he frequently dined at Humboldt's in the beginning of 1823, once with the purpose of conversing with William on the Champollionic hieroglyphics, as he took a great interest in this pictorial language, and on the connexion between language and writing in general. Niebuhr says, "One rarely can enjoy such conversations here." He admired the whole family. The son-in-law, Bülow, he calls one of the most eminent men in Berlin, and speaks of a grandchild as an extraordinarily amiable child.

The year 1824 was marked by two deaths which affected Humboldt deeply. On the 8th August F. A. Wolf died at Marseilles, as he had in vain hoped to restore his health in a more southern climate; and on the 21st of the same month, the Count Schlabrendorf followed him. Wolf had become more soured and embittered since 1817, and he certainly suffered many insults. Humboldt, however, always honoured him, although he did not approve of his eccentricity and exaggeration. He interested himself to the last for his studies and labours. We know that Wolf, during the last years of his life, was employed on the sketch for a Greek grammar on his own system, and that he was greatly encouraged and supported in this undertaking by Humboldt. But the acknowledgment he expressed at his death best proves Humboldt's esteem for the living man. He expressed it especially in a letter to Varnhagen von Ense, written on the 3rd September, 1833, in which he compares him to Goethe: "I have been thinking much of Wolf lately," he writes. "Fate has made the distinguishing difference between him and Goethe in their general characteristics. This may sound very paradoxical to you.

But in Goethe a principal feature was his divine reserve, his constant moderation in everything, the maintaining of necessary, boundaries. In Wolf, there was an endeavour after the contrary, an exaggeration even in excellence. Thence proceeds his frequent, divine boldness. In Wolf, the pure and sincere veneration of Goethe was a beautiful feature; Goethe, on the contrary, was, especially latterly, very unjust towards Wolf, and did not sufficiently acknowledge his truly great and comprehensive mind."

In 1825, a new and very congenial field of activity was opened to Humboldt. A number of Berlin artists and art-friends had united to give, by annual contributions, opportunities of work to the German artists studying in Rome, having merely the advancement of art for their object. This plan was soon extended in regard to its purpose and the number of its members, and in 1825 this first plan was changed into the Union for friends of art in the Prussian dominions. At first, prizes were given only to those artists who remained in Italy for their studies, but this condition was subsequently dropped. A directory and committee of artists managed the affairs. William von Humboldt was at once appointed to the head of the former, as his artistic taste and accurate acquaintance with Rome and Roman artists had well fitted him for it. He valued this office, as he considered art and plastic arts as one of the means for the development of humanity. He even declared, that the influence of art upon the public was of more importance than art itself. He proved this opinion by his acts, and devoted himself zealously to the duties of this society. It was he who wrote the programme which was issued by it on the 23rd August, 1825, and he wrote a report of the results achieved by the society regularly once or twice a year. The first report is dated 29th January, 1826; the last, 23rd March, 1835, a fortnight before his death. The principal portion of these programmes are merely of local importance; but those portions of them which are of general interest have

been included in the collected edition of his works. They form a valuable supplement to it, giving Humboldt's views on this field of art, and are a valuable contribution to the history of art in Germany.

In the spring of 1826, Humboldt went to Silesia to spend some time in Ottmachan. He travelled over Breslau, where he made some new friends, among them the famed philologist and lexicographer, Franz Passow. Humboldt honoured his opinions as much as his talents, for Passow was one of those who bravely opposed the romantic pietistic reaction in literature, which threatened to gain ground.

In the summer we find him again in Tegel, while his wife was at the baths of Gastein, and towards the end of the year he paid Goethe another visit, and remained with him over the new year. Goethe writes to his friend Zelter, 9th Jan., 1827. "I must acknowledge that I have been very well these last days, for Herr von Humboldt remained with us longer than I could have hoped, and I thus had the opportunity of filling up a wide breach of social intercourse."

The year 1826 is marked by two events which excited Humboldt's interest, though in a different degree.

The first was the Greek war of emancipation, which kept alive the opposition against the system of prince Metternich during the following oppressive years. The public sympathy for this cause was kept down in Berlin for some time, but a change was effected herein, in April, 1826; soon after the emperor Alexander's death. Professor Hufeland and three theologians of Berlin issued an appeal in favour of the Greeks in the beginning of May in this year, which excited the greatest enthusiasm. The contributions were reported in the Berlin newspapers, and among the first and most munificent, next to those of prince August, was that of the minister Von Humboldt.

The second event is of an entirely different kind. It was more an agitation of the Prussian nationality,

but directed to the intellectual field, and bore the colours and tendency of the age. "Annals of scientific criticism" were originated in this year, under Hegel's auspices, and the first number was published in the following year. This project showed the influence which Hegel's philosophy had at that time already gained, and its striving for an increased dominion. Many celebrated contemporaries who did not subscribe to Hegel's philosophy, were, indeed, invited to take part in this scheme, and among them, Goethe and Humboldt; but these names were wanted in reality, more as ornaments. Humboldt was aware of this, but accepted the invitation on that account, to prevent one-sidedness. He subsequently wrote several articles for these annals.

The course which German philosophy had pursued since Schelling taught, was not one which Humboldt could follow. He maintained, as long as he lived, the critical system to which his friend Schiller had adhered. He was less partial, even to Hegel's philosophy, than to any other, and this is proved in a letter written to Gentz on the 1st of March, 1828. "I agree perfectly," he says, "with what you say of the annals. They contain some very readable things by Varnhagen, some scientific ones by Bopp, but, on the whole, they do not please me. Hegel is certainly a clever and profound thinker, but I cannot imagine that such a philosophy as his can really take root. I have not been able to reconcile myself to it yet, although I have repeatedly tried. The indistinct language may injure him a little. It is not exciting, like that of Kant or Fichte, colossal and elevated, like the darkness of the grave, but arises from evident awkwardness. It is as if he could not wield the language. For when he treats of common things, it is anything but easy or noble. It may arise from a want of imagination, but I would not like to pronounce for his philosophy. The public seems to be divided into two classes with respect to Hegel; those who unconditionally adhere to him, and those who

avoid him as a sharp stumbling-block. But he does not belong to the philosophers who trust boldly to their ideas, he teaches his doctrines very perseveringly. The annuals are the fruit of this desire, and I joined the society to show that this was not to be its exclusive purpose. I do, however, associate with Hegel, and am, in social life, on good terms with him. I respect his talents and capabilities, without ignoring the above-named faults."

The nature of Humboldt's mind reveals itself more and more towards the latter end of his life, and it becomes evident that not the influence over others, not action, but an eminently ideal feature, inspired him. His was a thoroughly inquiring nature: the aim of his inquiries were ideas, and even his comprehensive intellectuality was subordinate to this purpose. But he distinguishes himself from the Indian sage, by not devoting himself exclusively to the contemplation of the divinity, but, like the true son of the more historical quarter of the globe, to the conceivable and practical, to the investigation of the intellectually-material nature of humanity, to the laws of human development, and the course of general history. When he did not act, he lived more in the contemplation of events of the past, and chiefly of antiquity, than of the present, more in ideas than in realities. This arose from a general view which he had early formed, that the development and perfection of the individual were the highest principle, and that the tribute even which every individual is bound to pay to the community, is yet principally the means for the development of this chief aim. Humboldt had paid his due tribute to the community; he still paid it, in so far as his activity affected the world; but he lived principally for himself and his own studies.

And in this sense Humboldt expresses himself unreservedly, in the confidential letters written at this time. He always speaks with great indifference of how the world judges what he does or did; and

we find this feeling expressed in several letters: "I am very well," he writes, on the 21st May, 1827, from Tegel. "Except the life with my family, and a little business relating to my private affairs, I live only in studies and scientific pursuits." The agreeableness of mere learning cannot be, he says, an entirely strange sensation to Gentz. He tells him that he has paved a new way for linguistic study for himself, which he must diligently pursue to reach the goal towards which he is striving. In another letter, after expressing his desire to see and converse with Gentz, he says: "I have always felt an old historical interest, and then all human affairs contract to very small importance. I see the stream which sweeps away the objects more than objects themselves. I do not think I have lost my vivacity: it arose in me because I do not draw it from life, care little for life, and am not unduly partial to life. This is now more the case than ever, though not from weariness. What formerly gave me pleasure, inspires me with the same feeling still, but because I am more ripe in ideas, and with ideas one grows beyond this life, which is not the true seat of ideas. Besides, life is an act which not only needs to be well commenced but well completed, and he who is wise goes most willingly when he is happiest. And I am very happy—so content within and without, that I have no wish which I could not attain through myself. I employ myself much with science now: but that also is only secondary, and not the principal object."

In the autumn of 1826 Alexander von Humboldt came to Berlin. He was persuaded by the king, who wished to have a scientific adviser at hand, to settle in Berlin in the course of the following year, and the wish to live near his brother, from whom he had been so long separated, induced him to comply with the king's request. He returned to Paris in December for the necessary arrangements in his affairs and literary labours.

A portion of the Humboldt family left Berlin in

the ensuing year. William von Humboldt's son-in-law, Freiherr von Bülow, was, in February, 1827, appointed ambassador to London, where he had formerly been only charge d'affaires, and where he gained such celebrity for his diplomatic skill, that he was, in later years, raised to the post of minister of foreign affairs. Bülow's wife and children remained at first in Berlin. He started alone, and proceeded first to Paris, from whence Alexander von Humboldt accompanied him to London. Both men were overwhelmed with attention by Canning, but Alexander soon proceeded by way of Hamburg to Berlin. William von Humboldt writes to Gentz, in May, 1827: "Alexander has taken up his residence here. He is more active and lively than ever, and we often speak of you." The brother remained in Berlin henceforward, although he for some time paid an annual visit to Paris, which had become his second home.

Madame von Humboldt had been in delicate health for some years, but the baths of Gastein had done her much good, and the winter was spent very happily. She determined, therefore, to visit the bath again. Humboldt, who now felt every separation from her painfully, accompanied her, as well as the eldest daughter Caroline. He purposed to use the baths himself, not for any positive complaint, for he was, on the whole, healthy, but merely to strengthen himself.

On the 13th of July, on the way to Gastein, he wrote to Gentz, that he wished to meet him there; but although Gentz was in the habit of visiting Gastein every year, he could not leave Vienna before September, on account of business; and as the Humboldts left on the 24th of August, to meet their children on one of their estates, they did not see each other. Humboldt was much pleased with Gastein, and felt himself strengthened by the baths.

He returned to Tegel, but soon removed to the town, where an especial treat awaited him. His brother Alexander gave a course of sixty-one lectures there as

the result of his travels, as has already been alluded to in Alexander's life.

In the spring of 1828, William von Humboldt made his last great journey. Madame von Bülow, his youngest daughter, had remained in Berlin, but was now to follow her husband to London. Humboldt determined with his wife and eldest daughter, to accompany his youngest one to her destination, and visit Paris at the same time.

On the 30th of May, they left Berlin, and proceeded direct to Paris, where they stayed several weeks, intending, however, to make another stay here on their return from London.

Paris at that time presented a scene of great interest. It was the time of Guizot's, Cousin's and Villemain's lectures, the epoch of a great intellectual revolution, which contributed with equal force to the overthrow of the elder Bourbons, to the foundation of a politically improved time, and to the extension of the intellectual life of the French nation. Indeed, the whole intellectual life in that capital was striving and refreshing.

And not only in a general point of view, but also for special branches of study, Paris offered a rich store of treasures. Paris was the central point for universal and comparative philology, and here it flourished most. Silvestre de Lacy, the father of universal philology in France, well known to Humboldt from former years, taught there among a new philological generation, to whom the great German philologist was a well-known and honoured name. In the session of the 19th of August, 1825, the Parisian Academy of Inscriptions and Sciences had elected him, and the philologist Creuzer, in Heidelberg, as foreign member (*associé étranger*), by an overwhelming majority of votes. But he probably only made the personal acquaintance of many of the younger philologists at this period, such as Champollion, the discoverer of hieroglyphics, and Jacquet, the adept in Asiatic languages. He was especially indebted for a hospitable reception to Abel-

Rémusat, St. Martin, Bournouf, and Julius Klaproth, his fellow-countryman, resident in Paris. Humboldt remained in scientific correspondence with nearly all these men, and also took the opportunity of returning their kindness by a learned essay on Philology, which he read in the institute which had elected him its member.

In London Humboldt saw his son-in-law in the office he had once himself filled, and met many a statesman and learned man whom he had known before, or whose acquaintance he now made. The great Canning was already dead, but he met his former colleague, the Austrian ambassador, Prince Paul Esterhazy, the Count Münster, minister for the Hanoverian affairs. King George IV., who had showed him great favour as Prince Regent, now received him with great honour. He decorated him, not only with the Grand Cross of the Guelphic Order, but had his portrait painted by Sir Thomas Lawrence for the royal castle at Windsor, where it now hangs beside that of monarchs, statesmen, and generals, beside Metternich, Hardenberg, Schwarzenberg, Wellington, Blucher, &c.

Humboldt, with his wife and eldest daughter, left the British capital on the 19th July. They returned to Paris, and hastened, after a short stay there, through Strasburg to Gastein, where they used the baths again, from the 15th August to 15th September. It is probable that on this occasion Gentz met them here. The remainder of the autumn the Humboldts spent in Tegel.

After the baths of Gastein had had such a favourable influence over the health of Madame von Humboldt, the evil now broke out with increased violence after their return from their journey. The end of November she was lying dangerously ill in Berlin; in January it was again said she was on her death-bed, but she lingered till March, when her illness suddenly took a more rapid turn, and she died on the 26th March, 1829.

The death of such a woman could not but be deeply felt. The report of her death in the Berlin *Allgemeine Zeitung* contained the words:—"The rare merits of her mind and character made the deceased lady the object of universal interest and esteem." By her travels she had become connected with everything great in science and art, and as in Rome, Vienna, and Paris, so had her house in Berlin been the centre for the most intellectual and agreeable society.

But her loss was most deeply felt by her family, and principally by her husband. His love for her had increased during the last few years, but had now reached its height. It seemed as if he had again won her, when she preceded him to a higher world. Her image never again left him; it was interwoven with all his ideas, it followed him in his dreams, it occupied every hour not devoted to serious study. And the hope of a future life was infinitely increased in confidence and strength by his desire to be re-united to his wife.

What first occupied him after her death was a monument which he had determined to erect to her memory in the park of Tegel, under the superintendence of the great sculptor Rauch. This monument was raised on a spot in the park to which the deceased had been especially partial, and had herself chosen for a resting-place. In the meantime her body was deposited in the churchyard of Tegel until the monument was completed. And frequently now Humboldt wandered through the cypress alley leading to the spot which contained these dear remains; from the summit of the monument a splendid statue of Speranza, which Thorwaldsen had made expressly for Madame von Humboldt, looked down consolingly and trustfully.

Humboldt could soon not bear to leave Tegel. He retired into solitude from the bustle of the town, and lived only in studies and in the past.

CHAPTER X.

THE death of Humboldt's wife made a great change in his studies, but it was a fortunate circumstance that many occupations and diversions conduced to fill up and enliven his leisure hours. This was the more necessary, as Alexander left Berlin a few weeks after the death, to undertake his last long journey to the Ural mountains, and did not return till the end of the year.

Among the occupations which employed William von Humboldt at this period, was the share which he was commissioned to take in the magnificent foundation of the new museum. The king, in May, 1829, appointed him the president of a commission which was to take charge of the interior arrangements in this new institution, a choice which was universally received with favour and approbation. In Berlin, it caused especial satisfaction, because it was believed that the honoured statesman would thereby be more induced to mix with the higher circles of society than it seemed probable he would do after his severe loss.

This commission consisted of the first artists and connoisseurs in Berlin, of Schinkel, the architect of the museum, of the sculptors Rauch and Tieck, the painter Wach, the councillor Hirt, and the subsequent director of the gallery of paintings, Dr. Waagen. With most of these men, Humboldt had been long acquainted, and was connected with some of them in the direction of the Art Union. He was on very

friendly terms with Rauch and Schinkel. Besides the members of the commission, the crown prince took a great interest in the arrangement of the museum. Humboldt's principal task in the commission was to direct the councils, to reconcile contradictory opinions, and to report to the king after the business was concluded.

On the 3rd August, 1830, the museum, a new ornament to the town of Berlin, was opened, and on the 21st of the same month, Humboldt submitted to the king a report of the arrangements which had been made. The king was highly gratified, and the museum honours the memory of its founders. In the hall are placed the busts of the men who were commissioned to organize the institution, and that of Schinkel, the architect, and of William von Humboldt. The bust of the latter was made by Tieck, after one by Thorwaldsen in Rome.

To strengthen his health, Humboldt visited Gastein in the years 1829 and 1830, but for his mind and spirit he sought other means of consolation. And as that sentimental feature which had characterized his youth now returned in age, he loved with increased tenderness all that had gladdened his younger years, Rome, the life in Jena, and especially Schiller's memory. He had for some time before had the intention of publishing that beautiful memorial of their intimacy, his correspondence, and had permitted Körner to publish a few fragments of it in his sketch of Schiller's life. Now, after Goethe had published his correspondence with his friend, Humboldt no longer hesitated to do the same; he prepared the publication of the letters in the commencement of 1830, and wrote his beautiful introduction to it in May, in Tegel. The collection soon afterwards appeared in Stuttgart, published by Cotta.

In September of this year Humboldt received from the King of Prussia the following gratifying communication. "I have read the report of the 21st ult., which you have prepared of the execution of the com-

mission given you for the arrangement of the museum, with great interest, and give my full approbation to the arrangements made under your direction. I have found all your propositions appropriate, and have requested the minister of religion and instruction to give his attention to their practicability, and then report to me on the subject. As a proof of my continued good will, and in acknowledgment of your former services to the state, I have elected you to my Black Eagle order, of which I send you the insignias. I wish, at the same time, that your health may permit you again to take part in the labours of the council of state. In this hope, I have announced to the council your renewed participation in its labours and its deliberations. Berlin, 15th September, 1830.—**FREDERIC WILLIAM.**”

This re-appointment to the council of state was, in reality, only a kind of restoration. Humboldt did not return to the active service of the state, nor did he draw his pension. But the mere re-appointment caused great joy among the public, though only on account of the expectations it excited; for it was hoped this appointment would merely be the first step, and that Humboldt would return to the ministry. The report was even spread that he had been entrusted with the plan of a constitution. But nothing of this was fulfilled; this would have been a reform in the system of which the old king never thought, although the critical foreign circumstances must have reminded him of his former promises. It is also not probable that Humboldt would have left his favourite labours, and undertaken the burdens of a ministry again, unless the condition of his country should have imperiously demanded the sacrifice.

Humboldt, however, regularly attended the meetings of the council of state, and was, with two others, even appointed a committee for foreign affairs; but the office was entirely a nonentity, as the minister for foreign affairs took care not to consult Humboldt on matters which it was well known that he would oppose.

We know that after the death of his wife Humboldt had chosen Tegel as his residence ; and he soon did not leave it even in winter. In the latter years of his life he rarely visited Berlin, and was seldom present at the meetings of the academy. His eldest daughter, Caroline, was with him, and was his chief support ; and his second daughter, Adelheid, with her husband, the General von Hedemann, also had the gratification of being with him during the last few years of his life. Besides this, there was no lack of visitors from the town. Princes, statesmen, and scholars, liked to visit the great man who lived at Tegel ; but he was sometimes so wrapt in his studies, that he saw no one except his own family, and even the highest persons in the state could not be admitted.

His physical condition also warned him to keep his last intentions ever in sight. Since the death of his wife, his physical strength had gradually decreased ; and his weakness visibly increased with his constant grief and his incessant mental labour. Those who saw him now in Berlin, and heard him speak publicly, could scarcely form any idea of the formerly so robust man. As if the mass of ideas which he carried with him had now become too heavy, his head fell deeper and deeper on his breast, and his tongue no longer moved with its former volubility. To strengthen himself, he visited the sea-bath Norderney in 1831, 1832, and 1833. The bath benefited him, and it seemed as if fate would prolong his life until its task were fulfilled. He worked industriously at his great work on the constitution of languages and on the Kawi language, and arranged all the mass of ideas which he had collected and made his own.

Most of these ideas are contained in the great philological work, but he had found another mode to express the ideas and feelings which occupied him. He had always felt the want of expressing the emotions and ideas which occupied him in a poetical garb, but this tendency increased to a remarkable degree

with age, and more still with the mood in which the ever-present feeling of a great loss contemplates nature and the retirement of country life. The fruit of this less sad than solemn frame of mind was a large number of poems, all in the same form, whose existence was unknown to his brother or to any member of his affectionate family. He had for several years dictated these sonnets to his secretary, Ferdinand Schulz, every evening, even when on his shorter journeys, and a portion of them have now been published. To every volume of his collected works his brother Alexander has prefixed a selection from this cyclis of beautiful sonnets, so that several hundreds have been published, and these are only a very small proportion of the entire quantity.

Two men especially gladdened the last years of his life—his brother Alexander and Goethe.

The brother now lived near him. How much they had to tell each other who had been so long separated, and, from reasons one may easily imagine, could not even communicate by correspondence. The letters they wrote to each other were rare, and were like a landscape without water or foliage. For, as is frequently the case, they did not even communicate what they might safely have written. What joy must it then have been for Humboldt to have his younger and more robust brother return near him, and see him advance on his course. We know how their studies had always advanced hand-in-hand,—how, when their paths lay far asunder, they watched each other's course with anxious interest,—and how, in the most opposite studies and pursuits, the relation of their souls could not be concealed.

Humboldt and Goethe also continued in uninterrupted correspondence until the death of the latter, and did not cease to assist each other by active interest and assistance. If, especially in the present age, there is something exceedingly gratifying in seeing two such eminent men maintain such an intimate friendship for nearly half a century, it is doubly affecting

when they impart their great thoughts to each other until their hour of death. Goethe's last letter to Humboldt was written on the morning of the day on which his fatal illness commenced, and Humboldt's reply arrived on the day of Goethe's funeral.

After his death, Humboldt seized the first opportunity of publicly expressing his views of him, and delivered a funeral oration on his memory to the Academy of Arts in Berlin. It was also the last time that Humboldt came prominently forward in public. He did indeed come to the town now and then till shortly before his death, but except for these occasional visits, principally made to the Society of Arts, he spent the whole of 1834 in Tegel, bent on the completion of his great philological work.

Whoever visited him in his solitude found him always more kind and resigned. We know indeed that his sentimental feature had never left him, but he could always restrain it by his reason and his practical mind. He had never been wanting in deep and tender feeling, but in the course of his public life he concealed his warmth of heart, and those only whom he loved and who were his equals in their tendencies found him always affectionate ; to others, though long acquaintances, he seemed cold and indifferent. He purposely concealed his feelings, and with conscious superiority treated even men who merited more, as subjects for his entertainment, so that many of his contemporaries saw nothing in him except a gigantic knowledge, a most penetrating insight, and great reason. But he was different after his retirement from public affairs, and especially during the last years of his life. Then he showed himself freely and without reserve ; even the sentimentality which had been peculiar to his youth returned. What he could confide to no one he expressed in the eloquent verses he left behind, but even in social intercourse his tender feelings revealed themselves plainly by gentleness and affection. Thus he lived until, in the third decade of this century, Germany lost, one after

another, a list of eminent men who had been her pride, and among them, William von Humboldt. Most of his companions had preceded him when he died in 1835.

He lived, as we have said, in Tegel; his mind was clear and bright, though his physical strength had sunk. For several years he had not been able to write on account of the tremulousness in his hand, but the debility did not become alarming until the winter 1834—1835. His mind was as cheerful and calm as ever. On the 5th February, 1835, he wrote to Nicolovius:—"I am no sufferer, but live a quietly happy life with my children, and alone with my labours and my dreams, in memories of the past and happy thoughts of the future."

Living with him were his daughters, Caroline, the eldest, Madame von Hedemann, with her husband, and Madame von Bülow, who had come with her children on a visit. Humboldt's brother lived in Berlin, and within reach. Thus surrounded by a circle of loving relatives, and ceaselessly labouring to give the finishing stroke to his Kawi work, he enjoyed the last days of his life.

But suddenly the catastrophe commenced which concluded his life. A cold which he caught in February, 1835, brought on a severe attack of illness, of which he died on the 8th of April, 1835.

The crown-prince and Prince William, the brother of the king, had visited him in his last illness, and had sincerely shared the grief of the family. Alexander wrote immediately after his brother's death to Arago, in Paris: "I had the misfortune to lose my brother the day before yesterday, and am in the most profound grief. In great distress we think of those dearest to us, and I feel a slight consolation in writing to you. We saw him dying for six days. His weakness had painfully increased during the last week; a continued trembling had showed itself in all his limbs, but his mind had retained all its native

vigour. He laboured ceaselessly, and leaves two almost finished works: one on the languages of the Indian archipelago, derived from the Sanscrit; the other, on the origin and philosophy of languages in general. These works will be published. My brother has left his manuscripts, his commenced works, and his valuable collection of books, to the public library. He died of an inflammation of the lungs, watching, with painful sagacity, the progress of the disease. His was a high intellect, and his soul was full of elevation and nobility. I feel very isolated."

The news of Humboldt's death created a great sensation in Berlin, and the newspapers all expressed the public grief at the loss of such a great and liberal man. He was buried beside his wife beneath the monument he had erected to her.

On Palm Sunday, April 12th, 1835, the interment took place. His Royal Highness Prince William, brother to the king, several generals and ministers of state, and an immense number of scholars and artists, had repaired to the castle to be present at the ceremony, and the procession left the house for the monument in the park at eleven o'clock. The hearse, covered with black crape, and drawn by four horses, was followed by the brother, the children, and the grandchildren of the deceased; after them came all those who had arrived from Berlin to be present, and the rear was formed by the community of the village, who showed their affection for him by accompanying his body to its last resting-place, chanting hymns and psalms by the way. At the monument, the coffin was placed upon a scaffolding, and Dr. Kossbach delivered a funeral oration on the deceased, in which he, without reference to dogmas, enumerated the merits of the deceased in his services to the state and to science, as well as his social and human virtues, in simple but eloquent words. The coffin was then slowly let down into the grave, where he rests, according to his wish, not in a bricked vault, but in

the earth. The grief of those present was too deep for words; they all felt what he had been to the world and to his country.

The children he left behind him were—

1. Caroline, born in Erfurt, 1792. She was never married, and died soon after her father.

2. Theodor, who took the name Humboldt-Dachröden, was born in Jena in 1797; is married, and has two children—a promising son named Wilhelm, and a girl called Mathilde. He still lives in Ottmachan.

3. Adelheid, born in Paris in 1800; married to General von Hedemann.

4. Gabriele, born in Berlin in 1802, was married to the Prussian minister Von Bülow, who died in 1846. She has a son and four daughters.

5. Hermann, born in Rome in 1809. He lives unmarried, on his portion of the estate of Ottmachan.

Humboldt left a considerable fortune, and a very explicit testament. His property was valued at above 600,000 dollars (90,000*l.*), and consisted partly in estates, which he had inherited from his father or obtained through his wife, or those he had received from the state. In his will, he divided the estates so that the portions of his sons were separated from those of his daughters. The sons obtained the estate of Ottmachan; of which Ottmachan Nitterwitz and a villa in Auleben were left to Theodor, and Ottmachan Friedrichseck to Hermann. The castle and estate of Burgörner, and the castle of Tegel, with all its treasures, were left to the eldest daughter, Caroline, with the clause that this inheritance should be left from one sister to the other. At present, Madame von Hedemann is the proprietress of Burgörner and Tegel; but as she is childless, the youngest daughter and her children will succeed to the property. Humboldt made the clause, that Tegel should remain in its present condition, and neither be sold nor divided, as long as any member of the family lives who lived there with him.

An important legacy was bequeathed to the public

library in Berlin. To it he left all his philological manuscripts and valuable autographs, beside all his unfinished works on this field, with the condition that they should be accessible to all students. Besides this, he left to it a large collection of rare books, of which he has made a separate list. The importance of this legacy to the royal library may be deduced from the fact that Humboldt, having long determined to leave these books to the library, had been collecting the works it wanted in this department, so that it was perfected by his means.

His collected works are being published under the direction of Alexander von Humboldt, assisted by Dr. C. Brandes, and have partly appeared. Some of his correspondence has also been published, including his letters to a friend, which have been translated, and these splendid specimens lead us to hope that others will follow.

And thus we take leave of this pillar of German intelligence, the companion of the greatest men whom the literature of the country has produced. We take leave of him with grateful and joyful feelings, for he was an encouraging and exalted pattern to his fellow men. Humboldt may justly be taken as a pattern of the depth and diversity of the German mind, and as the promise of a richer future for the German nation. He stands like the representative of the change from spirit to life, from idea to reality, in which the German mind is engaged, for he was one of the first and ablest who took this step. He adhered to the past, advanced boldly forward, and put his trust in humanity and his country.

THE END.

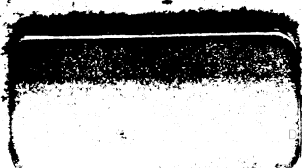
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